

Gender All the Way Down:

Proposing a feminist framework for analyzing gendered climate security risks

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Abstract

According to mythical world views from many traditions, there is a World Turtle that rests on a larger turtle, and that larger turtle rests on an even larger turtle, and on and on the turtles go. In other words, earth is held up by turtles, all the way down.¹ Just as the World Turtle story, this study attempts to uncover what role gender may play in supporting or mitigating climate-related crises and conflict by offering a conceptual Gender-Climate-Security Framework for assessing the gendered climate-security risks within particular contexts. Using several theoretical traditions, including feminist political economy, feminist political ecology, and women, peace, and security (international security) theory, the study interrogates existing climate security frameworks with a gender lens. The resulting framework proposed in this study comprises two primary components: (1) gendered climate-related human security risks, and (2) gender intersections with each of four types of national/international security risks, including crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions. Each of 15 climate security factors (early warning, healthcare, WASH, food security, recent shocks, long-term adaptation, poverty, life expectancy, education, standard of living, unemployment, socioeconomic development, infrastructure, corruption, and state fragility) are analyzed regarding how gender, climate change, and security factors may intersect one another. The study finds that there is ample evidence showing that women's diminished human security is likely

¹ Robert Rudnicki, "Turtles All the Way Down: Foundation, Edifice, and Ruin in Faulkner and McCarthy," *The Faulkner Journal* 25, no. 2 (2010): 26, <https://doi.org/10.1353/fau.2010.0002>.

to lead to fewer system-level resources and tools that support climate security and aid in preventing climate-related conflicts. The study also finds an emerging body of research that suggests considering gendered factors in national/international climate security threats would be beneficial for avoiding or resolving climate-related tensions. As such, if gender is given due consideration in climate security contexts, it is likely to provide useful insights that could guide policy and program implementation. This proposed framework does not suggest there is a single best approach to assessing gendered climate security risks, but rather offers a diagnostic approach for engaging in bottom-up climate security assessments that are place-based and context-specific. A necessary next step is for policymakers and practitioners to test and evaluate this approach under various conditions. Ultimately, in seeking to build a framework to understand how gender intersects with climate security concerns, this study finds that, like numerous turtles that form the foundation of a mythical earth, layer upon layer, from the top all the way to the bottom, the impacts of climate change on *Human Security* and *National/International Security* cannot be understood without considering gender. In other words, it's gender all the way down the climate security lifecycle, and humanity would be reckless to ignore it.

Author's Biographical Sketch

Using data analysis and feminist foreign policy perspectives and theories, Maryruth Belsey Priebe's research focuses on the nexus of gender, climate change, and peace and security in the Asia-Pacific. She was awarded Honours Standing with Distinction for her Bachelor of Arts (B.A.) Degree (Psychology), holds a post-graduate certificate in Sustainable Development, and graduated Magna Cum Laude with a Master of Arts in Religion Degree. Maryruth was also selected as a 2021-22 member of Harvard's Climate Leaders Program for Professional Students, and is currently a member of the Research Network on Women, Peace and Security in Canada. She has published on issues of climate change, sustainability, gender equality, and women, peace, and security, including the following recent pieces: "Compound Gender-Climate-Security Threats and Vulnerabilities within the Indo-Pacific," "The News Media: A Catalyst for Women, Peace and Security in Qatar," "COVID-19's Impact on American Women's Food Insecurity Foreshadows Vulnerabilities to Climate Change," "What the Biden-Harris Administration Means for WPS in the Indo-Pacific Region," and "Women Parliamentarians' Impact in Gender-Responsive & Climate-Inclusive Security Policymaking" (forthcoming). Maryruth's circular food economy policy work has been selected for inclusion in the OpenIDEO Food Systems Game Changers Lab, and she has held several research and fellowship positions focused on women's leadership. Going forward, Maryruth will serve in the role of non-resident Women, Peace, and Security (WPS) Fellow at Pacific Forum International.

Dedication

To Jeffrey, my thoughtful, supportive, generous, enchanting husband.

For your encouragement to revel in the joy of learning. For your challenge to never stop growing. For reminding me now is always the time to pursue my passion. For your unwavering confidence that my thesis project would be something useful and praiseworthy. For being a brilliant, curious, supportive human.

Love and overflowing gratitude.

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A special thanks to Jeffrey, to whom this project is dedicated. You are willing to engage with the intellectual struggles and discomfort of having a partner who refuses to accept the role the patriarchy ascribes to women in the world. I am proud to have a partner who is actively engaged in redefining and redesigning gender roles in his own work, too.

I'd like to extend my deep gratitude to other family members who tolerated me during many distracted, stressed, and overwhelmed phases of the thesis journey. In

particular, I am grateful to my parents, David and Pamela Belsey, who to this day push me to demonstrate determination in service of success. I count myself blessed to be part of a climate fighting sisterhood with my two siblings who inspire me daily by their leadership in architecture and medicine. My sister Heather serves as my constant confidant and fierce defender, and never refuses an intellectual challenge. My sister Susan is always available to generously share her expertise and challenge me with new perspectives. To my in-laws, Harold and Becky Priebe, who shower me with encouragement, kindness, and good life advice. And to my cousin-in-law-come-friend, Larissa, who never fails to have time to listen to me prattle on about my most recent analytical milestones.

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For all of you and many more, I give thanks.

Abbreviations

ACLED	Armed Conflict Location & Event Data
APSC	ASEAN Political-Security Community
ASEAN	Association of Southeast Asian Nations
CEC	Community Electrification Committee
CEO	Chief Executive Officer
COVID-19	Coronavirus Disease of 2019
CRI	Climate Risk Insurance
GCS-Factor	Climate Security Factor
GCS-Phase	Climate Security Phase
CSO	Civil Society Organization
DRR	Disaster Risk Reduction
DSR	Depletion through Social Reproduction
FAO	Food and Agriculture Organization of the UN
FGM	Female Genital Mutilation
FSI	Fragile States Index
GAD	Gender and Development
GDI	Gender Development Index
GNI	Gross National Income
GSMA	Global System for Mobile Communications
GDP	Gross Domestic Product

HA/DR	Humanitarian Assistance/Disaster Relief
HCSS	The Hague Centre for Strategic Studies
HFA	Hyogo Framework for Action of the UN
HPV	Human Papilloma Virus
HIV	Human Immunodeficiency Virus
ICT	Information and Communication Technology
IDP	Internally Displace People
IPCC	Intergovernmental Panel on Climate Change
IPV	Intimate Partner Violence
IRENA	International Renewable Energy Agency
IUCN	International Union for Conservation of Nature
KP	Kyoto Protocol
LBGTQI+	Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Intersex, and Allies
NAP	National Action Plan
NGO	Non-Government Organization
OECD	Organisation for Economic Co-operation and Development
OHCHR	United Nations Human Rights Office of the High Commissioner
PTSD	Post-Traumatic Stress Disorder
RAP	Regional Action Plan
SDG	Sustainable Development Goals of the UN
SFDRR	Sendai Framework for Disaster Risk Reduction
SGBV	Sexual- and Gender-based violence
SRF	Social Reproduction Feminism
SRHR	Sexual and Reproductive Health and Rights

STD	Sexually Transmitted Disease
SME	Small- to Medium-Sized Enterprise
UCDW	Unpaid Care and Domestic Work
UN	United Nations
UN	The United Nations
UNEP	United National Environment Programme
UNFCCC	UN Framework Convention on Climate Change
UNODC	United Nations Office on Drugs and Crime
UNSCR 1325	UN Security Council Resolution 1325
USA	United States of America
USAID	United States Agency for International Development
US DOS	US Department of State
VAW(G)	Violence Against Women and Girls
WASH	Water, Sanitation, and Hygiene
WFI	Work-Family Interface
WHO	World Health Organization
WMG	Women's Major Group
WPS	Women, Peace, and Security

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Chapter 1.

Introduction

Alarming, the impacts of climate change have come faster—10 years sooner—and more fiercely than most scientists thought likely, and are generating profound shifts in both human and international security.² *The World Climate and Security Report 2021* by the International Military Council on Climate and Security noted several important points: climate-related threats are already critical considerations for the security community; climate security risks will continue to intensify across all regions of the globe; militaries will be increasingly overstretched under intensifying climate change; and critically, “The global governance system is ill-equipped to deal with the security risks posed by climate change.”³ As the second costliest year on record for natural disasters worldwide, 2021 provided vivid proof of this new reality, and the ways in which climate change is threatening human security,⁴ particularly the security of women.⁵ Crucially, little is yet understood about the role gender plays in understanding climate security risks.

² Jacob Greber, “World to Hit Temperature Tipping Point 10 Years Faster than Forecast,” Australian Financial Review, August 6, 2021, <https://www.afr.com/policy/energy-and-climate/world-to-hit-temperature-tipping-point-10-years-faster-than-forecast-20210805-p58g7u>.

³ Steve Brock et al., “The World Climate and Security Report 2021,” Center for Climate and Security, an Institute of the Council on Strategic Risks (International Military Council on Climate and Security, June 2021), 7, <https://imccs.org/wp-content/uploads/2021/06/World-Climate-and-Security-Report-2021.pdf>.

⁴ Refer to section 1.2.2.2 for an explanation on how the term ‘*Human Security*’ is used in this study.

⁵ “Hurricanes, Cold Waves, Tornadoes: Weather Disasters in USA Dominate Natural Disaster Losses in 2021” (Munich RE), accessed March 1, 2022, <https://www.munichre.com/en/company/media-relations/media-information-and-corporate-news/media-information/2022/natural-disaster-losses-2021.html>.

Addressing the ways in which gender, climate change, and security intersect requires the integration of multiple lines of research. Given the complexity of the triple nexus of gender, climate change, and security, this study examines existing literature and research on climate change and security (international, national, and human security); gender and climate change; and gender and security (again, international, national, and human security) situated in both developed and developing countries from a variety of disciplines. Ultimately, the following study offers a proposed framework situated within the theoretical traditions of feminist political economy and feminist political ecology, and informed by several other traditions, including anthropology, psychology, human rights advocacy, and the security sector, including the Women, Peace, and Security Agenda. The resulting framework is intended to provide humanitarian organizations, policymakers, and security institutions a system for employing a gendered perspective in addressing climate security scenarios, and will hopefully be a useful tool for conducting gender-transformative climate security assessments, and planning for climate security outcomes that are gender transformative.

1.1. Review of the Literature

Scholarship on climate change within national and global security circles has matured in recent decades.⁶ In several meta-studies, researchers have concluded that the relationship between climate change and conflict is complex and contested, noting that more research is required to determine the relative importance of climate among drivers of conflict, the mechanisms and conditions under which conflict and climate

⁶ Joshua William Busby, Jeremi Suri, and Benjamin Valentino, “Climate Change and US National Security: Sustaining Security Amidst Unsustainability,” in *Sustainable Security* (New York: Oxford University Press, 2016), 196–230, <https://doi.org/10.1093/acprof:oso/9780190611477.003.0008>.

interconnect, and how future climate change impacts will differ from those experienced today—many of which will be discussed in the subsequent analysis.⁷ These arguments will be discussed in detail in the pages that follow. Despite scholarly contestation, there is a broad consensus that climate change hazards and events will affect armed conflict in a variety of ways and are expected to increase future conflict risks, especially when climate change interacts with low socioeconomic and government capacity and in regions where agriculture is a primary economic driver.⁸

The Women, Peace, and Security (WPS) Agenda, comprising United Nations Security Council Resolution (UNSCR) 1325 and nine additional WPS UNSCRs, is a key framework for understanding women’s unique experiences of insecurity. However, the study of women’s *climate* insecurity within the WPS agenda has only lately commenced.⁹ Several recent studies and reports have explored ways in which climate considerations can be better integrated into the WPS agenda.¹⁰ Climate change and international security

⁷ Katharine J. Mach et al., “Climate as a Risk Factor for Armed Conflict,” *Nature* 571, no. 7764 (July 2019): 193–97, <https://doi.org/10.1038/s41586-019-1300-6>.

⁸ Vally Koubi, “Climate Change and Conflict,” *Annual Review of Political Science* 22, no. 1 (May 11, 2019): 343–60, <https://doi.org/10.1146/annurev-polisci-050317-070830>; Mach et al., “Climate as a Risk Factor for Armed Conflict,” July 2019.

⁹ Carol Cohn and Claire Duncanson, “Women, Peace and Security in a Changing Climate,” *International Feminist Journal of Politics* 22, no. 5 (October 19, 2020): 742–62, <https://doi.org/10.1080/14616742.2020.1843364>.

¹⁰ Carol Cohn, “The Women, Peace and Security Agenda and the Climate Crisis: Inextricable Links” (Talk presented at The Nordic Africa Institute, Uppsala, Sweden, March 9, 2020), https://genderandsecurity.org/sites/default/files/Carol_Cohn_-_WPS_and_the_Climate_Crisis_-_Inextricable_Links_0.pdf; Adriana Abdenur et al., “How Can Climate Considerations Be Better Integrated into the Women, Peace, and Security Agenda?,” *IPI Global Observatory* (blog), October 15, 2021, <https://theglobalobservatory.org/2021/10/how-can-climate-considerations-be-better-integrated-into-the-women-peace-and-security-agenda/>; Radhika Coomaraswamy, “Preventing Conflict Transforming Justice Securing the Peace: A Global Study on the Implementation of United Nations Security Council Resolution 1325” (UN Women, 2015), [http://peacewomen.org/sites/default/files/UNW-GLOBAL-STUDY-1325-2015%20\(1\).pdf](http://peacewomen.org/sites/default/files/UNW-GLOBAL-STUDY-1325-2015%20(1).pdf); Annica Kronsell, “WPS and Climate Change,” in *The Oxford Handbook of Women, Peace, and Security*, ed. Sara E. Davies and Jacqui True (Oxford Handbooks, Oxford University Press, 2018), 726–36, <https://doi.org/10.1093/oxfordhb/9780190638276.013.55>; Keina Yoshida et al., “Defending the Future: Gender, Conflict and Environmental Peace” (Centre for Women, Peace and Security at LSE, 2021), <https://www.lse.ac.uk/women-peace-security/assets/documents/2021/Defending-the-Future.pdf>; Keina Yoshida and Lina M Céspedes-Báez, “The Nature of Women, Peace and Security: A Colombian

interactions have also begun to be explored in feminist political ecology (FPEcol) and feminist political economy (FPEcon) research.¹¹ However, as yet, none have contained a thorough integration of all three elements of the nexus: gender, climate change, and security.

In 2019, the United Nations (UN) Secretary-General acknowledged a pressing need to identify the linkages between gender, climate change, and conflict.¹² Furthermore, the 2020 UN report *Gender, Climate and Security: Sustaining Inclusive Peace on the Frontlines of Climate Change (2020)* suggested that challenging traditional gender norms has, “the potential to open-up new spaces for more inclusive peace and development processes.” However, the report went on to state:

despite growing awareness and recognition that women are important actors and influencers in climate change policy, they remain largely underrepresented in decision-making and planning processes, especially at

Perspective,” *International Affairs* 97, no. 1 (January 11, 2021): 17–34, <https://doi.org/10.1093/ia/iaaa173>; Amiera Sawas et al., “Gender, Climate & Security: Sustaining Inclusive Peace on the Frontlines of Climate Change” (UN Environment Programme. UN Women, UNDP, UNDPPA/PBSO, June 2020), <https://wedocs.unep.org/bitstream/handle/20.500.11822/32638/GCS.pdf?sequence=1&isAllowed=y>; Jessica M Smith, Lauren Olosky, and Jennifer Grosman Fernández, “The Climate-Gender-Conflict Nexus: Amplifying Women’s Contributions at the Grassroots” (Georgetown University Institute for Women, Peace and Security, 2021), <https://giwps.georgetown.edu/wp-content/uploads/2021/01/The-Climate-Gender-Conflict-Nexus.pdf>; Nicole George, “Promoting Women, Peace and Security in the Pacific Islands: Hot Conflict/Slow Violence,” *Australian Journal of International Affairs* 68, no. 3 (May 2014): 314–32, <https://doi.org/10.1080/10357718.2014.902032>; Elizabeth S. Smith, “Gender Dimensions of Climate Insecurity” (Stockholm International Peace Research Institute, March 2022), <https://doi.org/10.55163/MSJJ1524>.

¹¹ Farhana Sultana, “Gender and Water in a Changing Climate: Challenges and Opportunities,” in *Water Security Across the Gender Divide*, ed. Christiane Fröhlich et al., Water Security in a New World (Cham: Springer International Publishing, 2018), 17–33, https://doi.org/10.1007/978-3-319-64046-4_2; Marlène Elias, Deepa Joshi, and Ruth Meinzen-Dick, “Restoration for Whom, by Whom? A Feminist Political Ecology of Restoration,” *Ecological Restoration* 39, no. 1–2 (March 2021): 3–15, <https://doi.org/10.3368/er.39.1-2.3>; Floriane Clement et al., “Feminist Political Ecologies of the Commons and Commoning (Editorial to the Special Feature),” *International Journal of the Commons* 13, no. 1 (May 6, 2019): 1–15, <https://doi.org/10.18352/ijc.972>; Jon Barnett, “Global Environmental Change II: Political Economies of Vulnerability to Climate Change,” *Progress in Human Geography* 44, no. 6 (December 2020): 1172–84, <https://doi.org/10.1177/0309132519898254>.

¹² United Nations, 2020, “Climate Change”, accessed 7 January 2021, <https://www.un.org/en/sections/issues-depth/climate-change/index.html>

local levels, which can further exacerbate existing patterns of marginalization.¹³

Significant knowledge gaps remain where gender, climate change, and security (both global and human) intersect. A robust, comprehensive analysis is needed to understand the unique gendered vulnerabilities to complex climate-induced security challenges and how gendered norms and structures influence climate security outcomes. In particular, a thorough understanding of how gender interacts with climate-induced vulnerabilities and fragilities to increase or decrease human security and/or the probability of conflict and violence is required. This study is an exploration of these outstanding questions, and adds to the literature by offering a unifying conceptual framework for understanding the triple nexus of gender-climate-security.

1.2. Methods for Conceptualizing a Framework to Analyze the Gender Dimensions of Climate Security

In developing a proposed framework, this study will draw upon a review of the literature on climate change and security (international, national, and human security); gender and climate change; and gender and security (again, international, national, and human security) situated in both developed and developing countries from a variety of disciplines. The proposed framework is intended to provide humanitarian organizations, policymakers, and security institutions a system for employing a gendered perspective in understanding and planning for a variety of climate security scenarios. The study outlines the push and pull between the three factors in the triple nexus, explaining the ways in which climate breakdown is likely to contribute to individual and communal instabilities,

¹³ Sawas et al., “Gender, Climate & Security: Sustaining Inclusive Peace on the Frontlines of Climate Change,” 7, 24.

how gender influences peoples' vulnerabilities to climate change; and how climate change influences socially constructed understandings of gender and gendered structures. Additionally, the study outlines the scholarship that explains the pathways through which gender norms are impacted by climate security challenges (such as how destruction of critical urban infrastructure may intensify gender inequalities in transportation and telecommunications) and how gender impacts climate security outcomes (for example, how gender norms may encourage men to engage in riskier and perhaps more violent behaviour following an extreme weather event). The resulting framework and the diagnostic questions can be used to conduct gender-transformative climate security assessments, and examine gender and climate security outcomes.

1.2.1. Climate and Security Underpinnings of this Conceptual Framework

The climate-security structure of this framework is inspired by several existing frameworks, each of which variably focuses on international security, human security, or some aspect of both. The first is the Climate Security Assessment framework developed by The Hague Centre for Strategic Studies (HCSS).¹⁴ The HCSS Index is a climate security risk assessment methodology based on a combination of multiple indicators delineating the probability of a climate-related disaster to occur, and the potential impact of the specific natural hazard.¹⁵ Table 1 provides a breakdown of the HCSS Index elements.

¹⁴ Femke Remmits, Elisabeth Dick, and Michel Rademaker, "Climate Security Assessment: A Methodology and Assessment of the Nexus between Climate Hazards and Security of Nations and Regions" (The Hague Centre for Strategic Studies, December 2020), <https://hcss.nl/wp-content/uploads/2021/01/Climate-Security-Assessment-March-2021.pdf>.

¹⁵ Remmits, Dick, and Rademaker, "Climate Security Assessment," 10.

Table 1. HCSS Climate Security Index Elements.

Dimension	Indicators	
Vulnerability (a measure of a system's ability to plan for, mitigate, and prevent stressors such as climate hazards from developing into serious disasters and therefore maintain political stability following crises)	Coping Capacity	Healthcare WASH (water, sanitation, and hygiene) Food security Recent shocks Early warning
	Resilience	Long-term adaptation
	Hazard-specific	Hazard-specific
Susceptibility (the tendency of climate-exposed vital elements (people, infrastructure, resources, ecosystems, institutions, and economies) to suffer loss, damage, or other adverse effects because of climate hazards, often determined by socially constructed elements such as government stability)	Socio-economic	Poverty Life expectancy Education Standard of living Unemployment Gender Socio-economic development Infrastructure Hazard-specific
	Institutional (in)stability	Corruption State fragility
Exposure (the degree to which a given vital element (people, infrastructure, resources, ecosystems, institutions, and economies) is exposed to a climate hazard)	Persons in the hazard zone	Population
	Hazard zone	Area
Natural Hazard	Extreme Weather	Frequency and intensity

Summary of the HCSS Climate Security Assessment Report by the author. Note: While the HCSS Index includes gender, importantly, it is listed under only one element of the matrix (Susceptibility).

The elements of the HCSS Index will be combined with the Climate-Diplomacy Conceptual Model, developed by The German Federal Foreign Office and adelphi (a think tank focused on climate change, the environment, and development), which work together to analyze climate diplomacy and security in international spaces.¹⁶ The two organizations have jointly developed a Factbook and Case Studies which provide analyses based on an open-ended Conceptual Model. Since the Climate-Diplomacy Conceptual Model is not outlined in its entirety (in the public domain), the author has conducted a survey of 68 of Climate-Diplomacy’s published Case Studies, and summarized common elements of their Conceptual Model in Table 2.

Table 2. Climate-Diplomacy Conceptual Model.

Climate Change	gradual change in temperature/precipitation more frequent/intense extreme weather event
Social and Economic Drivers	demographic change infrastructure development economic development migration pattern environmental/climate policies
Environmental Change	increased water scarcity pollution /environmental degradation natural resource scarcity increased land scarcity extreme weather event land use change decline in fish stocks

¹⁶ The following is a description of Climate-Diplomacy’s Factbook and Case Studies, as well as a sample Case Study showing the Conceptual Model in practice: “About the Factbook,” Climate-Diplomacy, accessed March 9, 2022, <https://climate-diplomacy.org/case-studies/help>; “Syrian Civil War: The Role of Climate Change,” Climate-Diplomacy, accessed March 9, 2022, <https://climate-diplomacy.org/case-studies/syrian-civil-war-role-climate-change>.

Fragility and Conflict Risks	change in access/availability of natural resources reduced state capacity and/or legitimacy displacements/migration politicisation public health risks volatile food prices border disputes
Intermediary Mechanisms	interstate tensions anti-state grievances grievances between societal groups crime/violence/extremism weakened state

Results of a survey by the author of 68 Case Studies published by Climate-Diplomacy.

The interlinkages between climate change and human and national/international security are complex and highly nuanced, and both matrices offer unique perspectives for analyzing climate insecurity scenarios. For this study, the HCSS Climate Security Index is the model best suited to mapping a comprehensive gendered climate insecurity analysis. For the purposes of this proposed framework, therefore, the “Dimension” elements of the HCSS framework (“Vulnerability,” “Susceptibility,” “Exposure,” “Natural Hazard”) will be referred to as Gendered Climate-Security Phases, or GCS-Phases, of which this framework will cover two: “*Vulnerability*” and “*Susceptibility*.” (NB: While the “Exposure” and “Natural Hazard” “Dimensions” of the HCSS framework are important determinants of gendered climate security, it is beyond the scope of this study to cover them, though they may form the basis of future research by the author). Each GCS-Phase will be further broken down using the HCSS framework’s “Indicators,” which will be referred to in this study as Gendered Climate-Security Factors (GCS-Factors). Together, the GCS-Phases and GCS-Factors will be referred as the “*Gendered Climate-Security Lifecycle*” (see Table 3). For each GCS-Factor, this study will offer a

brief description of the dominant or conventional approach to examining it, which will be contrasted with a feminist approach. Following this, each GCS-Factor discussion will provide an analysis of the gendered human security risks and then an analysis of the gendered national/international security risks. Some elements of Climate-Diplomacy's Conceptual Model have been added to the list of GCS-Factors in Table 3; additional notes on the use of Climate-Diplomacy's Conceptual Model will be described in section 1.2.2.2.

Table 3. Proposed Gendered Climate-Security Lifecycle Structure.

	Gendered Climate-Security Phase (GCS-Phase)	Gendered Climate-Security Factor (GCS-Factor)
Vulnerability	Coping Capacity	Healthcare WASH Food security (<i>volatile food prices</i>) Recent shocks Early warning
	Resilience	Long-term adaptation
	Hazard-specific	Hazard-specific
Susceptibility	Socioeconomic	Poverty Life expectancy Education Standard of living Unemployment Gender Socioeconomic development Infrastructure Hazard-specific
	Institutional (in)stability	Corruption State fragility (<i>reduced state capacity and/or legitimacy, Displacements/migration</i>) <i>Public health risks</i> <i>Border disputes</i>
Exposure	Persons in the hazard-zone	Population
	Hazard-zone	Area

Natural Hazard	Extreme Weather	Frequency and intensity

Based primarily on the HCSS Climate Security Index, the table outlines all elements of the Gendered Climate Security Lifecycle in this study. Note that those elements of the HCSS framework which are not included in this study, such as “Exposure” and “Natural Hazard,” are indicated with strikeout font. In particular, “Gender” has been removed since it will be covered in every GCS-Factor. Elements of Climate-Diplomacy’s Conceptual Model have been added in purple.

1.2.2. Feminist Theories Underpinning this Conceptual Framework

The primary purpose of this study is to offer a gendered perspective to climate security considerations. Addressing the ways in which gender, climate change, and security intersect involves the integration of multiple lines of research. As mentioned, the proposed framework in this study is situated within the theoretical traditions of feminist political ecology (FPEcol) and feminist political economy (FPEcon) and will build primarily upon existing scholarship in these fields. However, where FPEcol and FPEcon literature are scant or non-existent, the proposed framework will draw upon diverse fields including feminist thought within anthropology, psychology, human rights advocacy, as well as the security sector, in particular the work of WPS experts. Two important terms at the triple nexus of gender-climate-security (gender and security) and two important related issues (essentialism and gender binaries) must first be defined for the purposes of this study. A discussion of these two terms and two issues will be briefly explored here.

1.2.2.1. Defining Gender on Two Scales: Individual and System

First, within this framework, gender will be understood as both the social construct of an *individual's* gender as well as the gendered structures within a *community/system/state*. On an individual level, feminist scholars hold that there is no universally accepted set of characteristics that are masculine or feminine, but rather that gender is socially constructed. Therefore, for the purposes of this framework, an individual's gender will be understood as a socially contrived description of, "associated norms, behaviours, expectations and roles."¹⁷

On a community/system/state scale, FPEcon literature suggests political and economic processes, structures, and institutions that inform how humans interact and relate to one another are inherently social processes in which gender is often obscured or ignored, resulting in unequal, gendered power relations. True and Tanyag describe a public/private spectrum of value that figures largely in FPEcon scholarship: within a political economy, structures and institutions functionally ascribe value to public, masculine work, while private, feminine work is overlooked; masculine production activities are visible and valorized, while feminine *reproduction* activities go unpaid, obscured, and devalued.¹⁸ Importantly, this public/private spectrum applies to security studies as well: through the privileging of masculinist structures within violence, conflict, and peace settings, women's and girls' security and freedom is frequently undermined, and thus so is the security of their communities.¹⁹ With this in mind, the proposed

¹⁷ Kristen Meagher, Bothaina Attal, and Preeti Patel, "Exploring the Role of Gender and Women in the Political Economy of Health in Armed Conflict: A Narrative Review," *Globalization and Health* 17, no. 1 (August 4, 2021), <https://doi.org/10.1186/s12992-021-00738-9>.

¹⁸ Jacqui True and Maria Tanyag, "Global Violence and Security from a Gendered Perspective," in *Global Insecurity: Futures of Global Chaos and Governance*, ed. Anthony Burke and Rita Parker (London, UK: Palgrave Macmillan, 2017), 43–63, https://doi.org/10.1057/978-1-349-95145-1_3.

¹⁹ True and Tanyag, "Global Violence and Security from a Gendered Perspective."

framework in this study will consider both the ways in which climate and security interact with a person's individual (socially constructed) gender, as well as the gendered structures and institutions within communities, nations, and international systems that inform how we understand security.

1.2.2.2. Defining Security on Two Scales: Human and National/International

In addition to looking to FPEcon to understand gender and gendered structures, this framework will use FPEcon to define two conceptions of security: human security and national/international security. Since UNSCR 1325 was first established, feminist theory and WPS theory have interacted in both cooperation and tension. While acknowledging that the WPS agenda and international security in general must take the climate crisis into consideration, both FPEcon and FPEcol theorists have criticized the WPS theory for the ways in which it has become overly securitized, often resulting in narrow, militaristic responses to complex problems such as climate change.²⁰ Conversely, WPS experts have insisted climate change will impact national/international security, and that a gender lens within the national security sphere is required to examine these interactions. As such, WPS experts are beginning to look at gendered climate security from a securitized perspective. For the purposes of this framework, each of these perspectives is necessary to adequately address both human and national/international security.

The concept of human security is a relatively new one. For essentially the first time, the 1994 United Nations Development Programme's (UNDP)'s Human Development Report posited a formalization of the term 'human security.' In contrast to

²⁰ Natalie Florea Hudson, "Securitizing Women's Rights and Gender Equality," *Journal of Human Rights* 8, no. 1 (March 2009): 53–70, <https://doi.org/10.1080/14754830802686526>.

conventional understandings of ‘security,’ which typically considers only national defense-based issues, such as threats to a country’s borders, conflict between states, and the use of arms for protection, the report offered the following definition of ‘human security:’²¹

Human security can be said to have two main aspects. It means, first, safety from such chronic threats as hunger, disease and repression. And second, it means protection from sudden and hurtful disruptions in the patterns of daily life-whether in homes, in jobs or in communities. Such threats can exist at all levels of national income and development. The loss of human security can be a slow, silent process--Or an abrupt, loud emergency. It can be human-made due to wrong policy choices. It can stem from the forces of nature. Or it can be a combination of both-as is often the case when environmental degradation leads to a natural disaster, followed by human tragedy. In defining security, it is important that human security not be equated with human development. Human development is a broader concept-defined in previous Human Development Reports as a process of widening the range of people's choices. Human security means that people can exercise these choices safely and freely-and that they can be relatively confident that the opportunities they have today are not totally lost tomorrow.

With this in mind, climate security cannot be understood without considering threats to human security. Indeed, underlying many national and international climate-related conflicts are issues of human *in*security, many of which are situated within highly gendered structures.

Due to the central role human security plays in climate change and national/international security spaces, feminist scholars have cautioned against using a solely national security approach to studying climate security. In the global north, for instance, climate change is increasingly referred to as a ‘threat multiplier,’ a phrase commonly used by those interested in protecting national security and political power

²¹ “Human Development Report 1994: New Dimensions of Human Security” (New York: UN Development Programme, 1994), 23, <https://hdr.undp.org/en/content/human-development-report-1994>.

hierarchies rather than the human security more broadly.²² Feminist political economists argue that the dangers of securitizing climate change include the following:

- Increasing military and security budgets and subsequently redirecting funds away from solving the climate crisis or addressing needs of peacebuilding and human security projects;
- Expanding military operations, leading to increased use of fossil fuels that intensify climate change (Importantly: the US military is the world's largest institutional user of petroleum and single largest producer of greenhouse gas emissions, while the UK military emits more carbon dioxide than that emitted by 60 nations);²³
- Pushing to return to the patriarchal status quo (rather than making the massive adjustments to the status quo required to address climate change); and
- Locating the threat of climate change as originating with its most vulnerable victims, the poorest and least powerful (rather than locating climate threats as originating with corporations and government policies most responsible for greenhouse gas emissions, especially those from developed nations).²⁴

²² Brock et al., "The World Climate and Security Report 2021"; Daniel Clausen and Michael Clausen, "Situating Climate Security: The Department of Defense's Role in Mitigating Climate Change's Causes and Dealing with Its Effects," *Strategic Insights* 9, no. 2 (Fall 2010): 13–25; Andrew A. Hill et al., "Implications of Climate Change for the U.S. Army" (US Army War College, July 2019), <http://www.hsdl.org/?abstract&did=827958>; Cohn, "The Women, Peace and Security Agenda and the Climate Crisis: Inextricable Links," 5.

²³ Neta C. Crawford, "Pentagon Fuel Use, Climate Change, and the Costs of War: Updated and Revised" (Watson Institute, Brown University, November 13, 2019), 2, <https://watson.brown.edu/costsofwar/files/cow/imce/papers/Pentagon%20Fuel%20Use%2C%20Climate%20Change%20and%20the%20Costs%20of%20War%20Revised%20November%202019%20Crawford.pdf>; Stuart Parkinson, *The Environmental Impacts of the UK Military Sector* (Lancaster, UK: Scientists for Global Responsibility-Declassified UK, 2020), 2, https://www.sgr.org.uk/sites/default/files/2020-05/SGR-DUK_UK_Military_Env_Impacts.pdf.

²⁴ Maryam Jamshidi, "The Climate Crisis Is a Human Security, Not a National Security, Issue," *Southern California Law Review*, Postscript, 93 (2019): 43; Parkinson, *The Environmental Impacts of the UK Military Sector*, 2; Crawford, "Pentagon Fuel Use, Climate Change, and the Costs of War," 2; Chris J.

Building on this idea, Cohn and Duncanson have outlined four ways in which the WPS agenda should centre the climate crisis and human security.²⁵

1. While woman's human security was at the heart of UNSCR 1325, it will be impossible to protect women's human security without addressing climate change.
2. In discussions based on only traditional conceptions of warfare and international security, climate change must be a consideration because of the ways in which it interacts with socioeconomic-political factors to complicate and amplify drivers of armed conflict.
3. Because of the multitudinous ways in which climate change will intersect with all matters of human and international security, climate change will be the *context* in which all peacebuilding occurs.²⁶
4. Climate change must figure in discussions of peacebuilding because it threatens the entire project of building peace by redirecting resources away from

Cuomo, "Climate Change, Vulnerability, and Responsibility," *Hypatia* 26, no. 4 (2011): 10, <https://doi.org/10.1111/j.1527-2001.2011.01220.x>.

²⁵ Carol Cohn and Claire Duncanson, "How the Women, Peace and Security Agenda Must Change in Response to the Climate Crisis," *International Feminist Journal of Politics* (blog), December 3, 2020, <https://www.ifjglobal.org/blog/2020/12/3/how-the-women-peace-and-security-agenda-must-change-in-response-to-the-climate-crisis-nbsp>; Cohn, "The Women, Peace and Security Agenda and the Climate Crisis: Inextricable Links."

²⁶ Cohn, "The Women, Peace and Security Agenda and the Climate Crisis: Inextricable Links." In particular, Cohn notes that climate change complicates the project of peacebuilding to such an extent that it must transform the conception for how peace is built. First, climate change will impact the effectiveness of peacebuilding: peacebuilding requires jobs and livelihoods while climate change destroys the conditions for providing jobs and livelihoods; peacebuilding requires addressing reforms for land rights and restitution, while climate change reduces the quantity and quality of land available; peacebuilding requires addressing the health crises and injury caused by war, while climate change adds pressure on health services. Second, every decision within the context of peacebuilding will have impacts on climate change; specifically, standard economic strictures placed on post-recovery systems tend to worsen rather than ameliorate climate change by relying on extractive economic development.

peacebuilding toward recovering from climate-damaged economies, disrupted public service systems, and crumbling infrastructures.²⁷

Importantly, by taking a gender-transformative climate approach to security challenges, focus is redirected away from the white, masculinist, capitalistic relationship between humans and nature, which prevent humanity from recognizing what is required to fix the climate crisis. In this study, therefore, ‘climate security’ will be framed crucially as a human security challenge with wide and deep implications. These themes will play important roles in this framework, especially those related to human security.

Nevertheless, as WPS experts have argued, conventional, defense-related conceptions of security cannot be ignored in understanding climate’s impact on security. There is now a growing scholarly literature showing how climate change may amplify armed conflict and inter- and intra-state security threats.²⁸ Security scholars such as de Jonge Oudraat and Brown have noted a few examples of climate security threats that should not be overlooked because of the ways in which they multiply existing national/international security threats:

Rising sea levels threatening the existence of small island nations along with the world’s coastal cities and populations; intensifying naval and resource competitions in the Arctic; the impact of extreme weather and rising temperatures on the viability of human habitats; and the impact of

²⁷ Cohn and Duncanson, “How the Women, Peace and Security Agenda Must Change in Response to the Climate Crisis”; Cohn, “The Women, Peace and Security Agenda and the Climate Crisis: Inextricable Links.”

²⁸ Koubi, “Climate Change and Conflict”; Beatrice Mosell, Lukas Rüttinger, and Liesa Sauerhammer, “The Climate Change-Conflict Connection - The Current State of Knowledge,” Climate Security Experts Network (Climate Diplomacy, January 22, 2020), <https://climate-diplomacy.org/magazine/conflict/climate-change-conflict-connection-current-state-knowledge>; Nina von Uexkull and Halvard Buhaug, “Security Implications of Climate Change: A Decade of Scientific Progress,” *Journal of Peace Research* 58, no. 1 (January 1, 2021): 3–17, <https://doi.org/10.1177/0022343320984210>.

climate-generated population movements on governmental viability, national security, and regional stability.”²⁹

The authors go on to suggest that framing climate change as a security threat is one way to elevate it as a policy priority.³⁰

Thus, while a substantial portion of this study will address the role gendered human (in)security plays in increasing/decreasing state fragility and violence risks, this study will also examine how a gender lens can shed light on the complexities of climate security within conventional conceptions of *National/International Security*. Each section within this study will therefore contain a *Human Security* discussion as well as a *National/International Security* discussion. Furthermore, the central question in this framework can be approached in three ways: (1) how do culturally determined gender identities/structures/institutions increase/decrease climate resilience and *Human Security*, (2) how does climate breakdown interact with and/or change culturally determined gender identities/structures/institutions, and how do such interactions/changes increase/decrease climate resilience or *Human Security*, and (3) how do increases/decreases in resilience and *Human Security* through pathways (1) or (2) make climate-related *National/International Security* threats more likely? As the Human Development Report above recommends, any scenario discussed in this study may illustrate one or the other, or all three.

Climate-Diplomacy’s Conceptual Model contains elements that add to the specificity of the climate-security analysis. In particular, Climate-Diplomacy’s

²⁹ Chantel de Jonge Oudraat and Michael E. Brown, “Gender, Climate Change, and Security: Making the Connections,” *Wilson Center* (blog), January 25, 2022, <https://diplomacy21-adelphi.wilsoncenter.org/article/gender-climate-change-and-security-making-connections>.

³⁰ “New Dimensions of Human Security.” This report framed challenges within the development community – including health, environment, food, economic – as “*Human Security*” issues, thereby raising the need to address them to a higher policy level within the international community.

‘Intermediary Mechanisms’—including *crime/violence/extremism*, *anti-state grievances*, *grievances between societal groups*, and *interstate tensions*—will be used to inform the analysis and organize the findings in the *National/International Security* discussion of each GCS-Factor considered. The basic structure of the proposed framework is illustrated in Figure 1.

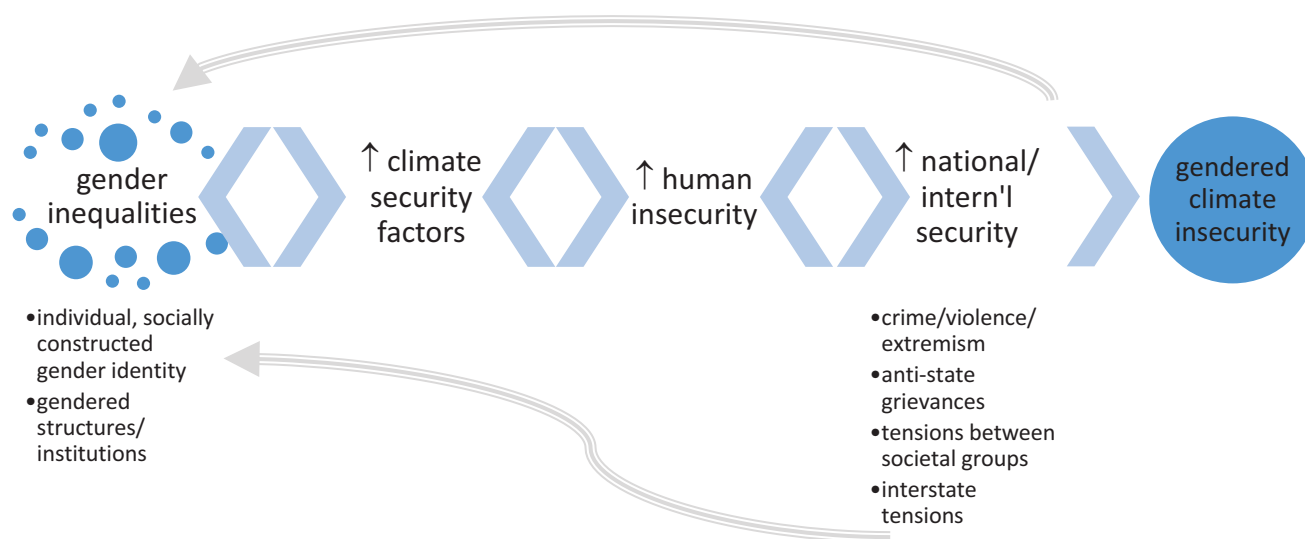


Figure 1. Basic Proposed Gendered Climate-Security Lifecycle Framework.

Basic structure of this study’s proposed Gender-Climate-Security Framework with the addition of security on two scales: human insecurity and national/international security, plus gender on two scales: socially constructed individual gender identity and gendered structures/institutions. Note the grey arrows which indicate the feedback loop between gender, climate change, and security factors.

1.2.2.3. A Note on Gender Essentialization and Gender Binaries

Before exploring the various gender lenses used in this framework, it is important to address two common concerns within feminist theory: gender essentialization and gender binaries. First, on gender essentialization, which is understood as the reinforcing

or reproducing of gender stereotypes as natural or inevitable: As Arora-Johnsson's work has argued, theories describing women as only vulnerable or virtuous should be questioned, especially regarding climate change.³¹ As such, one of the primary aims of this study is to offer an approach to open up conversations about both women's and men's roles in climate-related violence and conflict within specific localities as a way to break typical gendered stereotypes. As such, to understand links between gender, climate, and security, this study attempts to describe the evidence available—evidence which primarily uses binary gender terms—on how gender is theorized, conceived, or governed, and therefore manifested, reinforced, and internalized in various climate change or security contexts. Using that evidence, the proposed framework attempts to provide a structure for interrogating problematic behaviours, institutions, or structures in order to dispel myths perpetuated by gender essentialism, and offer diagnostic questions for testing unique gender expressions within particular contexts that may complicate climate security matters.

Second, while gender binaries can exclude certain genders, they are useful analytic devices, especially for examining heavily binary social relations. Given that most systems globally (local communities and states alike) are primarily read and performed as binary (socially and culturally), this study largely examines the intersections of Gender-Climate-Security using a binary lens. Nevertheless, issues related to the climate security vulnerabilities of members of the LGBTQI+³² community will be raised when possible.

³¹ Seema Arora-Jonsson, "Virtue and Vulnerability: Discourses on Women, Gender and Climate Change," *Global Environmental Change*, Special Issue on The Politics and Policy of Carbon Capture and Storage, 21, no. 2 (February 12, 2011): 744–51, <https://doi.org/10.1016/j.gloenvcha.2011.01.005>.

³² Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Intersex, and Allies

1.2.3. Lenses of Analysis for Conceptualizing Gender in Climate Security

As already discussed, to understand how gender, climate, and security are interlinked with each GCS-Factor, the proposed framework organizes each GCS-Factor section around two primary components: (1) *Human Security* and (2) *National/International Security*. These primary components are analyzed using the theories developed by several scholars. *Human Security* (1) is analyzed using the rubric developed by Forsberg and Olsson (section 1.2.3.1), with particular attention to women's human *insecurity* as a predictor of national/international *insecurity*. The *National/International Security* component of each GCS-Factor (2) is structured around Climate Diplomacy's four 'Intermediary Mechanisms,' namely *crime/violence/extremism*, *anti-state grievances*, *grievances between societal groups*, and *interstate tensions*, and is analyzed by applying three existing theories: (2A) patterns posited by several authors, but especially Campaniello, that look at gender and crime, localized violence, and extremism (section 1.2.3.2); (2B) concepts developed by Rucht and Caren et al. to examine gender and civic unrest participation, particularly *anti-state grievances* (section 1.2.3.3); and (2C) theory developed by Wood, Eggert, and Thomas (as well as separately by Wood) to analyze gendered motivations for violent participation in *anti-state grievances*, *grievances between societal groups*, and *interstate tensions* (section 1.2.3.4). The four theoretical foundations (1, 2A, 2B, and 2C) for the gender analysis are outlined briefly in the following sections.

1.2.3.1. Gender and Human Insecurity: Women's Safety as Predictor of National/International Insecurity

Feminist security scholar Caprioli was one of the first to offer evidence of a strong relationship between gender inequality and armed conflict.³³ Following this initial finding, Hudson et al. used extensive data analysis to show that when a system places a strong emphasis on the subordination of women at the household level via what they call the 'Patrilineal/Fraternal Syndrome,' that system (community or state) is more likely to experience instability and insecurity, lower levels of overall well-being, greater environmental degradation, and decreased prosperity.³⁴ In fact, Hudson's research suggests that data on the vulnerability/safety of a community's women enhances predictions of state stability (and therefore also climate resilience) more than data on a state's economics or form of government.³⁵ Since then, numerous scholars have developed a robust literature that suggests, at the country level, both intrastate and interstate armed conflict is much more likely to occur in countries that display high levels of gender inequality.³⁶ Building on this foundation, Schmeidl and Piza-Lopez have argued that changes in gender equality such as reductions in women's status, attacks on

³³ Mary Caprioli, "Gendered Conflict," *Journal of Peace Research* 37, no. 1 (January 1, 2000): 51–68, <https://doi.org/10.1177/0022343300037001003>; M. Caprioli, "Primed for Violence: The Role of Gender Inequality in Predicting Internal Conflict," *International Studies Quarterly* 49, no. 2 (June 1, 2005): 161–78, <https://doi.org/10.1111/j.0020-8833.2005.00340.x>.

³⁴ Valerie M. Hudson, Donna Lee Bowen, and Perpetua Lynne Nielsen, "The Effects by the Numbers: The Syndrome and Measures of National Outcome," in *The First Political Order, How Sex Shapes Governance and National Security Worldwide* (Columbia University Press, 2020), 310, <http://www.jstor.org/stable/10.7312/huds19466.11>.

³⁵ Hudson, Bowen, and Nielsen, "The Effects by the Numbers," 310.

³⁶ Theodora-Ismene Gizelis, "Gender Empowerment and United Nations Peacebuilding," *Journal of Peace Research* 46, no. 4 (July 2009): 505–23, <https://doi.org/10.1177/0022343309334576>; Elin Bjarnegård and Erik Melander, "Disentangling Gender, Peace and Democratization: The Negative Effects of Militarized Masculinity," *Journal of Gender Studies* 20, no. 2 (July 2011): 139–54, <https://doi.org/10.1080/09589236.2011.565194>; Jacqueline H. R. DeMeritt, Angela D. Nichols, and E. G. Kelly, "Female Participation and Civil War Relapse," *Civil Wars* 16, no. 3 (2014): 346–68, <https://doi.org/10.1080/13698249.2014.966427>.

women, limiting of women’s rights, or increased discrimination against women in a country may serve as early warnings of increased risk of violent conflict.³⁷

Table 4. Three Mechanisms for Analyzing Interlinkages Between Gender Equality and Security.

Norms	Violence is considered a legitimate form of conflict resolution in systems where severe forms of unequal gender norms are prevalent.
Societal capacity	Increasing women’s rights requires higher investment in women, which generates higher levels of social resources and networks, ultimately supporting more peaceful forms of conflict resolution.
Socioeconomic development	In more gender equal societies, certain socioeconomic developments result in fewer young men being available for recruitment into armed groups, thereby lowering the chances of armed conflict along the following routes. <ul style="list-style-type: none"> • state-based conflict due to surplus males in urban environments • non-state conflict due to surplus males • surplus males and unemployment

*Concepts developed by Forsberg and Olsson and summarized by the author.*³⁸

Of particular relevance for this study is the work by Forsberg and Olsson which uses data at the sub-national level to posit three mechanisms for the relationship between gender inequality and insecurity, which are shown in Table 4.³⁹ Analyzing each of these three mechanisms of *norms*, *societal capacity*, and *socioeconomic development*, Forsberg and Olsson found insufficient empirical support for the connection between their *norms* mechanism and sub-national armed conflict, however they suggest gender inequality

³⁷ Susanne Schmeidl and Eugenia Piza-Lopez, “Gender and Conflict Early Warning: A Framework for Action” (International Alert, London, June 2002), https://www.researchgate.net/publication/252478157_Gender_and_Conflict_Early_Warning_A_Framework_for_Action.

³⁸ Erika Forsberg and Louise Olsson, “Examining Gender Inequality and Armed Conflict at the Subnational Level,” *Journal of Global Security Studies* 6, no. 2 (June 17, 2021), <https://doi.org/10.1093/jogss/ogaa023>.

³⁹ Forsberg and Olsson, “Examining Gender Inequality and Armed Conflict at the Subnational Level.”

norms may play an indirect role, especially when combined specifically with ideological ideas of male toughness. However, their study found strong support for the *societal capacity* mechanism, noting that specific investments in women such as education, empowerment, women's networks, and political representation strengthen society overall. For the gendered *socioeconomic development*, they found results differed depending on the conditions. When a substantial young male surplus (often due to a strong, persistent son preference) in an *urban* environment is combined with strong family or tribal networks for reaching potential recruits, the relationship is strong between gender inequality and *state-based* violence (violence perpetrated by the state), and increases in strength the denser the urban population. When examining *non-state* violence (non-state armed groups that are partly or completely independent of government), they find that a young male surplus has a similar effect in both urban or rural conditions, suggesting an increased likelihood of low-scale, localized non-state violence and riots in rural and urban settings in which recruitment can take place using family or kin ties. Finally, they found that when large groups of young men experience economic conditions that prevented some from fulfilling masculine role expectations (such as marriage or employment), this might allow for higher likelihood of gathering and organizing into networks through which recruitment can be directed. As such, "the effect of a male surplus may be more pronounced under higher levels of male unemployment."⁴⁰

⁴⁰ Forsberg and Olsson, "Examining Gender Inequality and Armed Conflict at the Subnational Level."

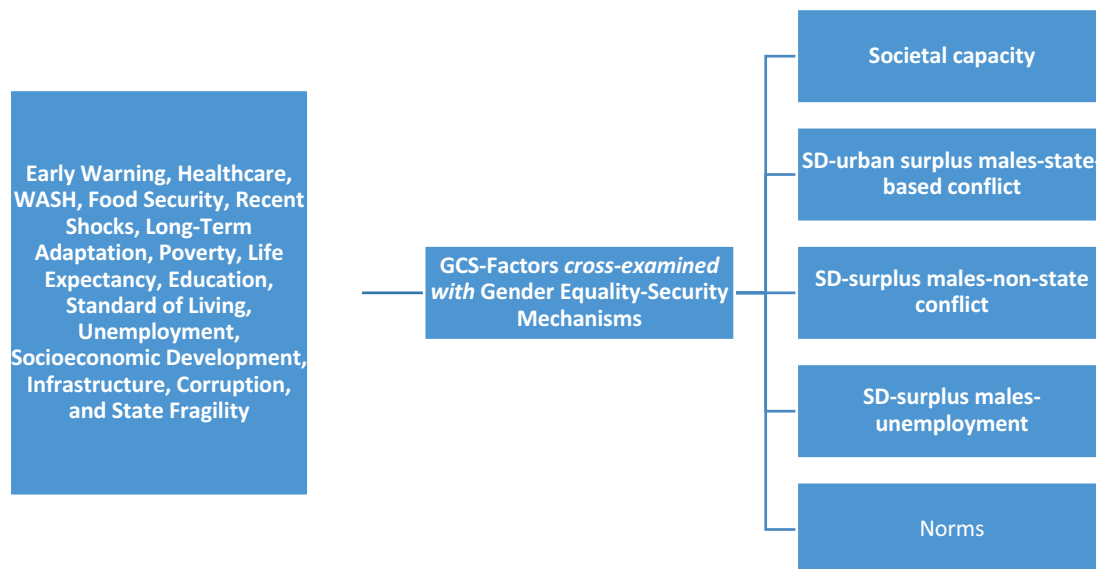


Figure 2. Five Gender Equality-Security Mechanisms Applied to the Gendered Climate-Security Lifecycle.

The Gender Equality-Security Mechanisms will be applied in the Human Security aspects of this Gender-Climate-Security Framework to analyze how various climate factors may impact security.

The framework presented in this study will apply Forsberg and Olsson's gender equality-national/international security mechanisms to each GCS-Factor (though *norms* will only be applied to one, the *Education* GCS-Factor, given Forsberg and Olsson's findings noted previously). For each GCS-Factor, existing research will be analyzed and categorized within this rubric according to which of the mechanisms may be at work in potential climate-related insecurity pathways, especially those that pertain to gendered

Human Security. Within this framework, the mechanisms will be referred to as ‘*Gender Equality-Security Mechanisms*,’ and will include: ‘*societal capacity*’ and one of three ‘*socioeconomic development*’ (SD) mechanisms, (referred to as ‘*SD-urban surplus males-state-based conflict*,’ ‘*SD-surplus males-non-state conflict*,’ and ‘*SD-surplus males-unemployment*’).

Figure 2 shows a cross-comparison of the two variables in this part of the analysis. An illustration of how this element appears within the proposed framework can be seen in Figure 3.

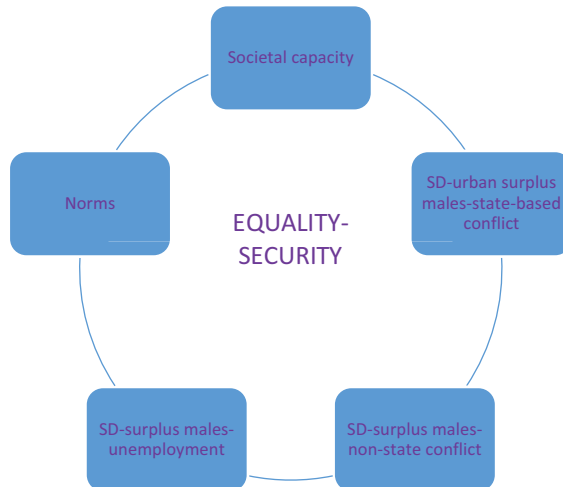


Figure 3. Five Gender Equality-Security Mechanisms as Illustrated in the Proposed Framework.

Forsberg and Olsson model applied to the proposed Gender-Climate-Security Framework.

1.2.3.2. Gender and National/International Security: Women's and Men's Participation in Crime, Localized Violence, and Extremism

The persistent gender gap in violent crime is well-documented in literature, with rates remaining stable since 2000.⁴¹ According to the 2019 UN Office on Drugs and Crime (UNODC) report on homicide, 90% of all homicides globally were committed by men, and men make up 80% of all homicide victims.⁴² In particular, young men living with poverty are significantly more likely to engage in crime, and be victims of crime.⁴³ The UNODC estimates that 19% of all homicides are related to criminal activity and gangs, resulting in many more deaths than those caused by armed conflict.⁴⁴ In the case of organized crime, it is more likely than not that men will play outsized roles in violence according to a wide literature that also shows women are typically sidelined to auxiliary roles within gangs.⁴⁵ Similar patterns have been observed in extremist groups (more on this in section 1.2.3.4). Furthermore, should *grievances between societal groups* take the

⁴¹ Hua (Sara) Zhong et al., "Understanding Women's Antisocial and Criminal Behavior: A Global Review," in *The Cambridge Handbook of the International Psychology of Women*, ed. Diane F. Halpern and Fanny M. Cheung, Cambridge Handbooks in Psychology (Cambridge: Cambridge University Press, 2020), 402–16, <https://www.cambridge.org/core/books/cambridge-handbook-of-the-international-psychology-of-women/understanding-womens-antisocial-and-criminal-behavior/347B3A71BF84ADCC9098A6023888F498>.

⁴² "Global Study on Homicide" (UNODC, 2019), 23, [//www.unodc.org/unodc/en/data-and-analysis/global-study-on-homicide.html](https://www.unodc.org/unodc/en/data-and-analysis/global-study-on-homicide.html).

⁴³ Delores E. Smith and Godwin S. Ashiabi, "Poverty and Child Outcomes: A Focus on Jamaican Youth," *Adolescence* 42, no. 168 (Winter 2007): 840.

⁴⁴ "Global Study on Homicide," 12.

⁴⁵ Annette Hübschle, "Of Bogus Hunters, Queenpins and Mules: The Varied Roles of Women in Transnational Organized Crime in Southern Africa," *Trends in Organized Crime* 17, no. 1 (June 1, 2014): 31–51, <https://doi.org/10.1007/s12117-013-9202-8>; Edward R. Kleemans, Edwin W. Kruisbergen, and Ruud F. Kouwenberg, "Women, Brokerage and Transnational Organized Crime. Empirical Results from the Dutch Organized Crime Monitor," *Trends in Organized Crime* 17, no. 1 (June 1, 2014): 16–30, <https://doi.org/10.1007/s12117-013-9203-7>; Karen A. Joe and Meda Chesney-Lind, "'Just Every Mother's Angel' An Analysis of Gender and Ethnic Variations in Youth Gang Membership," *Gender & Society* 9, no. 4 (1995): 408–31; Anqi Shen, "Female Membership in the Black-Society Style Criminal Organizations: Evidence From a Female Prison in China," *Feminist Criminology* 11, no. 1 (September 22, 2015): 69–90, <https://doi.org/10.1177/1557085115605910>; Jody Miller, *One of the Guys: Girls, Gangs, and Gender* (New York: Oxford University Press, 2001); Finn-Aage Esbensen, *Youth Violence: Sex and Race Differences in Offending, Victimization, and Gang Membership* (Temple University Press, 2010).

form of organized crime, it is more likely than not that men will play outsized roles in violence according to a wide literature that also shows women are typically sidelined to auxiliary roles in such groups.⁴⁶

Nevertheless, research by Campaniello of women in crime over the past 50 years shows that in recent decades, women's participation in the commission of crimes has increased, though not yet to the level of men.⁴⁷ For instance, Olcott and Udalova noted that women's involvement in drug trafficking in Kazakhstan increased from 3% in 1996 to 12.2% in 2000, and similar trends were detected in Tajikistan and Kyrgyzstan.⁴⁸

Campaniello posits that participation differences between women and men are likely due to women's lower criminal earnings and the fact that having children lowers a woman's propensity to engage in criminal activity.⁴⁹ Furthermore, Campaniello shows that women are twice as likely to engage in non-violent property crime as they are violent crimes, suggesting perhaps that the level of violence originating with acts taken by women is much lower.⁵⁰ Consequently, gender must be considered when addressing climate-related criminal activity and its impact on conflict and violence rates. This framework will attempt to outline studies that link gendered criminal activity within individual GCS-Factors. An illustration of how this element appears within the proposed framework can be seen in Figure 4.

⁴⁶ Hübschle, "Of Bogus Hunters, Queenpins and Mules"; Kleemans, Kruisbergen, and Kouwenberg, "Women, Brokerage and Transnational Organized Crime. Empirical Results from the Dutch Organized Crime Monitor"; Joe and Chesney-Lind, "Just Every Mother's Angel? An Analysis of Gender and Ethnic Variations in Youth Gang Membership"; Shen, "Female Membership in the Black-Society Style Criminal Organizations"; Miller, *One of the Guys*; Esbensen, *Youth Violence*.

⁴⁷ Nadia Campaniello, "Women in Crime," *IZA World of Labor*, July 31, 2019, <https://doi.org/10.15185/izawol.105>.

⁴⁸ Martha Brill Olcott and Natalia Udalova, "Drug Trafficking on the Great Silk Road: The Security Environment in Central Asia," *Carnegie Endowment for International Peace*, Working Paper for the Russian and Eurasian Program, no. 11 (March 2000): 18.

⁴⁹ Campaniello, "Women in Crime."

⁵⁰ Campaniello, "Women in Crime," 4.



Figure 4. Theoretical Roles of Women and Men in Crime, Violence, and Extremism as Illustrated in the Proposed Framework.

Illustrated summary of concepts developed by Campaniello and other scholars as used within the proposed framework.

1.2.3.3. Gender and National/International Security: Women’s and Men’s Roles in Anti-State Grievances

Looking at how gender may play a role in whether civic action becomes destabilizing, a study by Rucht shows that men are far more likely to participate in disruptive action, such as occupying buildings or factories.⁵¹ Where violent civic participation is concerned, men are more likely to participate in disruptive action, especially when attended by unemployed working-class men who have experienced

⁵¹ Dieter Rucht, “The Spread of Protest Politics,” in *The Oxford Handbook of Political Behavior*, ed. Russel J. Dalton and Hans-Dieter Klingemann, 1st ed. (Oxford University Press, 2009), 708–23, https://www.researchgate.net/publication/289752882_The_Spread_of_Protest_Politics.

ongoing marginalization.⁵² However, when action is considered less risky, Caren et al. find that women are more likely to engage, such as with boycotts or petition-signing.⁵³ As such, within this study, where possible, specific studies will be provided to illustrate how gender intersects with civic violence in that particular GCS-Factor. An illustration of how this element appears within the proposed framework can be seen in Figure 5.

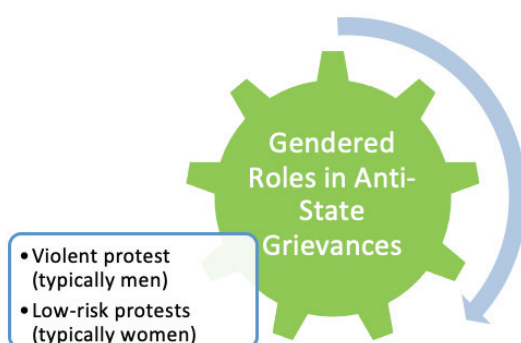


Figure 5. Theoretical Roles of Women and Men in Anti-State Grievances as Illustrated in the Proposed Framework.

Illustrated summary of concepts from Rucht and Caren et al. as used within the proposed framework.

⁵² Yandisa Sikweyiya and Sebenzile Nkosi, “Violent Protests and Gendered Identities,” *African Safety Promotion Journal* 15, no. 1 (June 2017): 1–7; Rucht, “The Spread of Protest Politics.”

⁵³ Neal Caren, Raj Andrew Ghoshal, and Vanesa Ribas, “A Social Movement Generation: Cohort and Period Trends in Protest Attendance and Petition Signing,” *American Sociological Review* 76, no. 1 (February 2011): 125–51.

1.2.3.4. Gender and National/International Security: Gendered Motivations for Participation in Anti-State Grievances, Grievances Between Societal Groups, and Interstate Conflict

Understanding who participates in armed violence—whether it’s climate-fueled *anti-state grievances*, or *grievances between societal groups*, or *interstate tensions*—may be one way to comprehend how to resolve and prevent conflict and build peace.

Ideologies of all types usually form the foundations on which motivations are built, while motivations offer language for naming and prioritizing goals, and coordinating actors.⁵⁴

Many motivations have their roots in gendered ideologies that determine different priorities for women and men.⁵⁵ As such, understanding gendered motivations may be instrumental in identifying who is most likely to engage in a particular form of conflict and perhaps what unexpressed needs must be met in order for them to engage in peacebuilding instead.

Furthermore, considering gendered motivations in climate-related violence and conflict is important for guarding against the essentializing of women and men as virtuous/victims (women) or violent/conflicted (men). For instance, there is some data suggesting that men are far more likely to be involved as armed combatants. Data on the gender balance of fighters in guerrilla, rebel, and paramilitary groups is difficult to find, though historically, men accounted for 90% of all war-related deaths.⁵⁶ However, this does not provide a full picture of why men more often than women may be recruited as

⁵⁴ Francisco Gutiérrez Sanín and Elisabeth Jean Wood, “Ideology in Civil War: Instrumental Adoption and Beyond,” *Journal of Peace Research* 51, no. 2 (March 7, 2014): 213–26, <https://doi.org/10.1177/0022343313514073>.

⁵⁵ Patricia Justino et al., “Pathways to Achieving Food Security, Sustainable Peace and Gender Equality: Evidence from Three FAO Interventions,” *Development Policy Review* 38, no. 1 (January 2020): 85–99, <https://doi.org/10.1111/dpr.12413>.

⁵⁶ Cindy D. Ness, “The Rise in Female Violence,” *Daedalus* 136, no. 1 (January 2007): 91, <https://doi.org/10.1162/daed.2007.136.1.84>.

combatants, nor does it elucidate when and why women may participate in the same conflagrations, or why they do so less frequently. Importantly, feminists have argued that essentializing women and men in such ways robs them of their agency and glosses over the complex reasons that they go to war.⁵⁷

From an FPEcon perspective, “all human beings, from gestation in the womb through to old age, are influenced by the circumstances they experience and confront across different life stages.”⁵⁸ Using essentialist terms, some have suggested that because women are socialized to perform tasks related to their reproductive roles within the private sphere (childbearing, socialization of children, caring for family members, management of the household), they are therefore less likely to have the time or inclination to be involved in conflict and war.⁵⁹ Reif outlines how these patriarchal attitudes operate:⁶⁰

1. The sexual division of labour reflects natural differences between women and men.
2. Women's identity comes through their relationship with men.
3. Women achieve their highest fulfillment as wives and mothers.
4. Women are childlike.
5. Women are apolitical.

Such essentialist conceptions of the nature of women and men have received wide feminist criticism. Nevertheless, it is true that gendered beliefs have informed deeply embedded patriarchal norms which have generated gendered structures that have largely

⁵⁷ Gül Pembe Akbal, “Female Combatants: Same Goals, Different Motivations?” (University of Kent, 2017), 2, <https://www.e-ir.info/2017/06/02/female-combatants-same-goals-different-motivations/>.

⁵⁸ Carroll L Estes, “Women’s Rights, Women’s Status, Women’s Resistance in the Age of Trump,” *Generations: Journal of the American Society of Ageing* 41, no. 4 (2018): 36–44.

⁵⁹ Linda L. Reif, “Women in Latin American Guerrilla Movements: A Comparative Perspective,” *Comparative Politics* 18, no. 2 (1986): 148, <https://doi.org/10.2307/421841>.

⁶⁰ Reif, “Women in Latin American Guerrilla Movements,” 148.

excluded women from participating in armed conflict.⁶¹ Understanding potential gendered differences in motivations is therefore important.

Research has shown that, while women combatants are rare, women have been increasingly involved in paramilitary and armed insurgent groups.⁶² For instance, in 2005, the National Liberation Army of Colombia had close to 50% women, while in Nepal, approximately 30% of the Communist Party of Nepal-Maoists were women.⁶³ Yet the motivations, sense of agency, and roles women and men play in combat groups can vary substantially based on unique cultural and gender norms.

While several studies, such as that by Mazurana et al., note that women and girls are often forcibly recruited into armed groups, and may lack agency in their roles, a growing literature has teased out women's and men's different motivations for participation in armed conflict.⁶⁴ In particular, work by Wood suggests women, like men, may join militant groups as a way to increase their chances of survival, to avoid abuse, or to achieve greater opportunities than those available prior to the conflict.⁶⁵ For instance, groups such as the FMLN and the Sandinistas (Nicaragua) that advocate for economic redistribution, gender equality, or Marxist-oriented ideologies are more likely to attract women combatants.⁶⁶ Though less common, groups espousing fundamentalist Islam or

⁶¹ Akbal, "Female Combatants."

⁶² Jakana L Thomas and Reed M Wood, "The Social Origins of Female Combatants," *Conflict Management and Peace Science* 35, no. 3 (May 2018): 215–32, <https://doi.org/10.1177/0738894217695524>.

⁶³ "Armed Non-State Actors: Current Trends & Future Challenges," in *DCAF Horizon Working Paper* (DCAF & Appel de Genève, 2015), 8, https://www.files.ethz.ch/isn/144858/ANSA_Final.pdf.

⁶⁴ Dyan E. Mazurana et al., "Girls in Fighting Forces and Groups: Their Recruitment, Participation, Demobilization, and Reintegration," *Peace and Conflict: Journal of Peace Psychology* 8, no. 2 (June 2002): 106–8, https://doi.org/10.1207/S15327949PAC0802_01.

⁶⁵ Reed M. Wood, *Female Fighters: Why Rebel Groups Recruit Women for War* (Columbia University Press, 2019).

⁶⁶ A.L. Henshaw, *Why Women Rebel: Understanding Women's Participation in Armed Rebel Groups*, *Why Women Rebel: Understanding Women's Participation in Armed Rebel Groups*, 2016, <https://doi.org/10.4324/9781315456614>; Jakana L. Thomas and Kanisha D. Bond, "Women's Participation

nationalist ideologies have also been effective in recruiting women, even as suicide bombers, suggesting that groups do not have to necessarily attract women with promises of greater gender equality.⁶⁷ The issues that motivate men to join militant groups are often different than those driving women. Work by Eggert suggests men's motivations may include the pull of existing networks and desire for camaraderie; personal exposure to violence against friends and family or state repression; desire for revenge for acts of violence; and concerns over personal physical security (though less common, these same issues may also motivate some women to engage in armed conflict).⁶⁸

in Violent Political Organizations," *American Political Science Review* 109, no. 3 (August 2015): 488–506, <https://doi.org/10.1017/S0003055415000313>; Reed M Wood and Jakana L Thomas, "Women on the Frontline: Rebel Group Ideology and Women's Participations in Violent Rebellion," *Journal of Peace Research* 54, no. 1 (2017): 31–46.

⁶⁷ Mia Bloom, "Female Suicide Bombers: A Global Trend," *Daedalus* 136, no. 1 (2007): 94–102; R. Kim Cragin and Sara A. Daly, *Women as Terrorists: Mothers, Recruiters, and Martyrs* (Praeger, 2009), <https://www.abc-clio.com/products/e2555c/>; Miranda H. Alison, *Women and Political Violence: Female Combatants in Ethno-National Conflict* (London ; New York: Routledge, 2009), <http://webcat.warwick.ac.uk/record=b2062576~S1>; Swati Parashar, *Women and Militant Wars: The Politics of Injury*, 1st ed. (London: Routledge, 2014).

⁶⁸ Jennifer Philippa Eggert, "Female Fighters and Militants During the Lebanese Civil War: Individual Profiles, Pathways, and Motivations," *Studies in Conflict & Terrorism*, (November 5, 2018): 1–30, <https://doi.org/10.1080/1057610X.2018.1529353>; Jocelyn S. Viterna, "Pulled, Pushed, and Persuaded: Explaining Women's Mobilization into the Salvadoran Guerrilla Army," *American Journal of Sociology* 112, no. 1 (2006): 1–45, <https://doi.org/10.1086/502690>; Wood, *Female Fighters*.

Table 5. Gendered Motivational Mechanisms/Roles in Violence and Conflict.

<p>Typical motivations and roles for women combatants</p>	<p>Common Motivations:</p> <ul style="list-style-type: none"> • Increase chances of survival; • Avoid abuse by rebel or government forces; • Enjoy greater range of opportunities. <p>Less Common Motivations:</p> <ul style="list-style-type: none"> • Fundamentalist ideologies; • Affiliation with motivations common among men (below). <p>Typical Roles Played:</p> <ul style="list-style-type: none"> • Auxiliary roles: cooking, logistics, transportation, operations, media, child rearing.
<p>Typical motivations and roles for men combatants</p>	<p>Common Motivations:</p> <ul style="list-style-type: none"> • Pull of existing networks; • Fundamentalist ideologies; • Exposure to violence or state repression; • Desire for revenge. <p>Less Common Motivations:</p> <ul style="list-style-type: none"> • Concerns over personal security. <p>Typical Roles Played:</p> <ul style="list-style-type: none"> • All roles, including leadership.

Findings by Wood, Eggert, and Thomas and Wood summarized and organized by the author.⁶⁹

On the issue of roles, Luciak notes that traditional gendered hierarchies found in peacetime are often replicated in wartime organizations, with such organizations reflecting the specific gendered norms within their communities.⁷⁰ As such, Thomas and Wood have found that, as in gangs, women in armed groups and rebel organizations often fill support roles (though these are often crucial) and are frequently denied positions of power, though Coulter et al. and others have found that women fighters often have some

⁶⁹ Wood, *Female Fighters*; Eggert, "Female Fighters and Militants During the Lebanese Civil War."

⁷⁰ Ilja Luciak, *After the Revolution: Gender and Democracy in El Salvador, Nicaragua and Guatemala*, *Contemporary Sociology*, vol. 32 (JHU Press, 2001), <https://doi.org/10.2307/3089606>.

degree of authority within their groups.⁷¹ Furthermore, research by Kampwirth shows that women's participation in such groups may lead to structural changes between genders, in which case new opportunities for women to take leadership roles in the home and in social and political life may be created.⁷² Moreover, Thomas and Wood argue that as women take on greater roles in social, economic, and political processes they are also perceived as capable of participation in rebel organizations. They identify three mechanisms for these changes: (1) greater skills and knowledge gained through education; (2) increased socialization with men that increase men's confidence in women's abilities; and (3) network growth through education and socialization, which leads to smoother pathways into rebel groups.⁷³ Feminist scholars such as Steenbergen critique notions of reintegration, since such processes often result in a snap-back to previous gendered hierarchies and backlash against women who held more power or played non-traditional roles within conflict settings.⁷⁴ Where applicable, therefore, studies that explain how women's involvement in various armed violence may offer opportunities for transforming gendered norms will be noted.

With the above findings in mind, this study looks for ways to understand how climate security threats are likely to attract individuals along various pathways. As such, exploring how motivations and roles impact why women and men join armed groups is

⁷¹ Thomas and Wood, "The Social Origins of Female Combatants"; Chris Coulter, "Female Fighters in the Sierra Leone War: Challenging the Assumptions?," *Feminist Review* 88, no. 1 (2008): 54–73.

⁷² Karen Kampwirth, *Women & Guerrilla Movements: Nicaragua, El Salvador, Chiapas, Cuba / Karen Kampwirth*. (University Park, Penn: Pennsylvania State University Press, 2002).

⁷³ Thomas and Wood, "The Social Origins of Female Combatants," 218–20.

⁷⁴ Michanne Steenbergen, "Empowerment, Reintegration, and Female Ex-Combatants: A Critical Feminist Peacebuilding Analysis of UN-Led Disarmament, Demobilization, and Reintegration Programs in Liberia and Nepal | Research Explorer | The University of Manchester" (United Kingdom, University of Manchester, 2020), 46, [https://www.research.manchester.ac.uk/portal/en/theses/empowerment-reintegration-and-female-excombatants-a-critical-feminist-peacebuilding-analysis-of-unled-disarmament-demobilization-and-reintegration-programs-in-liberia-and-nepal\(e891f863-fad3-4fb9-b64b-740db36801c4\).html](https://www.research.manchester.ac.uk/portal/en/theses/empowerment-reintegration-and-female-excombatants-a-critical-feminist-peacebuilding-analysis-of-unled-disarmament-demobilization-and-reintegration-programs-in-liberia-and-nepal(e891f863-fad3-4fb9-b64b-740db36801c4).html).

important for understanding how climate-related conflicts develop, and critical for understanding gendered structural conditions post-conflict and in peacebuilding. See Table 5 for a brief summary of the combined rubrics of Wood, Eggert, and Thomas and Wood describing gendered motivations and roles of women and men in conflict.

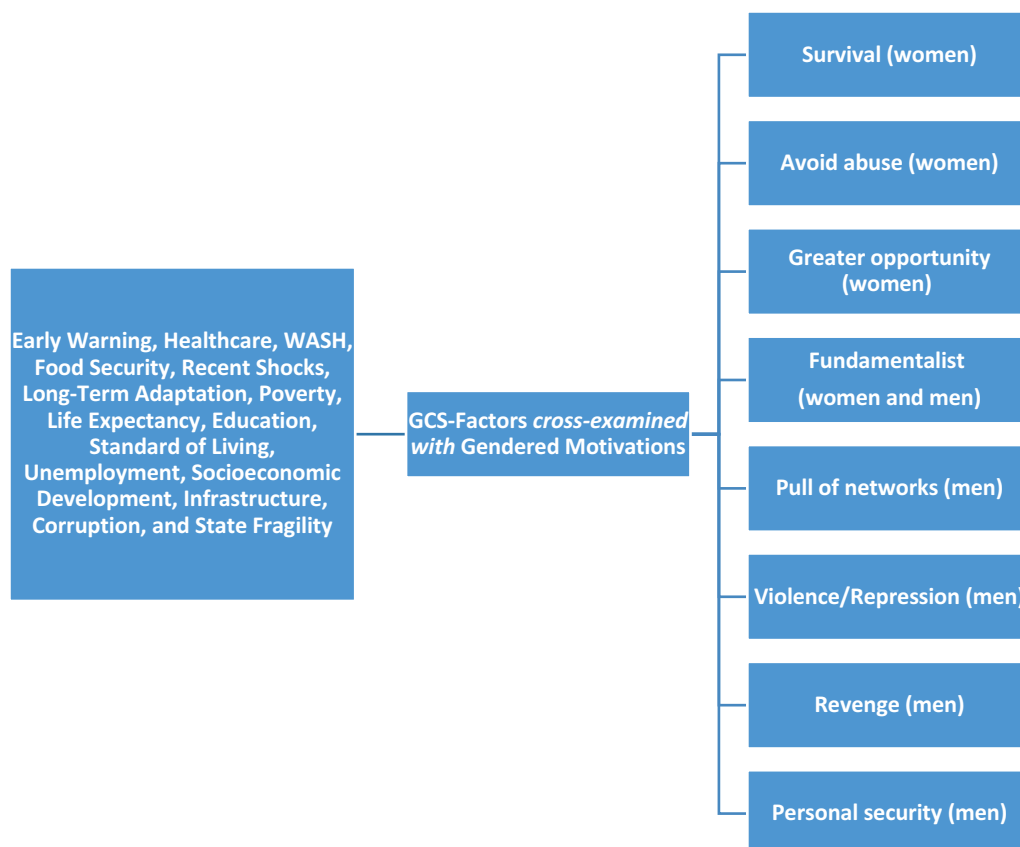


Figure 6. Gendered Motivations Applied to the Gendered Climate-Security Lifecycle.

The climate and security research by various scholars will be analyzed in the National/International Security subsections of this Gender-Climate-Security Framework; those that suggest gendered motivational mechanisms that may impact climate and security will be identified and categorized according to the rubric in the above figure. In cases where studies do not explain motivational mechanisms, it will be noted that there is a lack of evidence and a need for additional research.

In the *National/International Security* subsection of each GCS-Factor in this proposed framework, studies connecting climate and security will be explored, and any that offer strong evidence for (gendered) motivations for participation and roles played will be identified. See Figure 6 for how this data will be organized and for a visual representation of how these rubrics will fit into this proposed framework. Note, however, that one of the goals of this study is to determine whether enough research has been conducted to be able to categorize various climate security factors based on gendered motivations. As will be shown, in the majority of cases, much more research is yet required to ascertain the specific role gendered motivations may play in engagement in various climate insecurity scenarios. As such, within each GCS-Factor *National/International Security* analysis, it will also be noted where little or no evidence exists for (gendered) motivations for involvement in climate-related conflict or violence. A summary of all findings in this study will be offered in the conclusion as well.

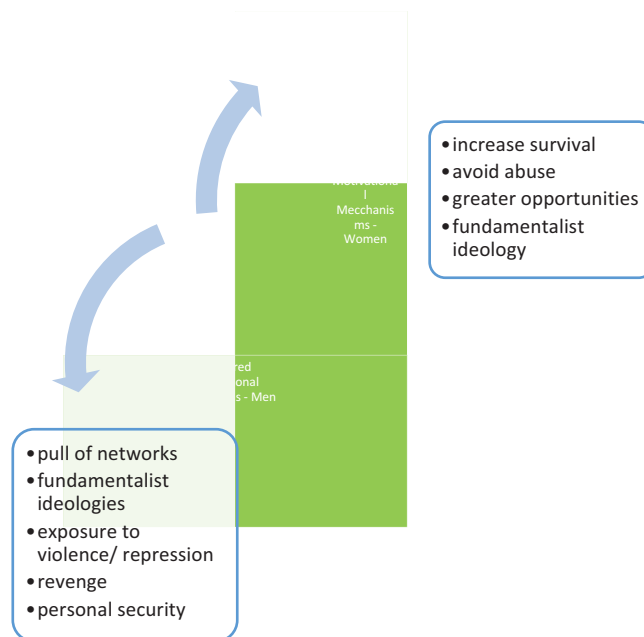


Figure 7. Theoretical Motivational Mechanisms of Women and Men in Anti-State Grievances, Grievances Between Societal Groups, and Interstate Conflict as Illustrated in the Proposed Framework.

Illustrated summary of concepts developed by Wood, Eggert, and other scholars as used within the proposed framework.

1.2.4. Gender-Climate-Security Linkages: The Proposed Framework

Combining the theory within the various analytical models outlined above allows for the organization of research on the complex intersection of gender, climate change, and security, and a linking of theoretical questions with existing analysis across a broad range of disciplines, including feminist political economy, feminist political economy, security and foreign policy, and women, peace, and security. Ultimately, the analysis within this framework will offer the following findings:

- Gender + GCS-Factor \rightarrow Δ (increased or decreased) *Human Security*

- Gender + GCS-Factor + Δ *Human Security* → changes to gender roles/institutions
- Gender + GCS-Factor + Δ *Human Security* → Δ *National/International Security*
(*crime/violence/extremism, grievance between societal groups, anti-state grievances, interstate tensions*)
- Gender + GCS-Factor + Δ *National/International Security* → changes to gender roles/institutions

In subsequent chapters, this framework will be used in the following manner.

1. Chapter Structure:

The proposed Gender-Climate-Security Framework is organized into two main chapters: Chapter 2 – Vulnerability and Chapter 3 - Susceptibility. Within each chapter, the proposed framework will consider each Gendered Climate-Security Factor (GCS-Factor) in Table 3 in turn.

2. GCS-Factor Analysis Structure:

Each GCS-Factor section will be organized with the following subsections, which are described below:

- Comparison of Dominant versus FPEcon/FPEcol Approaches
- Short Overview of the Gender-Climate-Security Linkages
- GCS-Factor and Human Security
- GCS-Factor and National/International Security
- Conclusion
- Diagnostic Questions

- **Comparison of Dominant vs. FPEcon/FPEcol Approaches to GCS-Factor:**

Each GCS-Factor section will begin with a brief description of the dominant definition of that GCS-Factor, contrasted with an FPEcon/FPEcol approach to defining that GCS-Factor.

- **Short Overview of the GCS-Factor Gender-Climate-Security Linkages:**

Each GCS-Factor section will include a summary of the Gender-Climate-Security linkages found in the discussion to follow.

- **GCS-Factor and Human Security:**

Gendered considerations of the GCS-Factor will be analyzed for their impact on *Human Security* using the *Gender Equality-Security Mechanisms*:

- *societal capacity*
- one of three *socioeconomic development (SD)* mechanisms, referred to as: *SD-urban surplus males-state-based conflict*, *SD-surplus males-non-state conflict*, and *SD-surplus males-unemployment*
- *norms* (for the *Education* section only)

- **GCS-Factor and National/International Security:**

Four types of *National/International Security* threats will be analyzed using several different gender lenses:

- **Crime/violence/extremism:**
 - *Gendered motivations/roles*: Typical motivations for women and men to engage in various types of security threats, including: typical motivations for women: *increase survival, avoid abuse, greater opportunities, fundamentalist ideology*; and typical

motivations for men: *pull of networks, fundamentalist ideologies, exposure to violence/repression, revenge, personal security.*

- *Gendered crime types (property crime (typically women) or violent crime (typically men))*
- **Grievance between societal groups:**
 - *Gendered motivations/roles (see list under crime/violence/extremism above)*
- **Anti-state grievances:**
 - *Gendered motivations/roles (see list under crime/violence/extremism above)*
 - *Gendered protest types (low-risk/high violence protests (typically women) or higher-risk/high violence protests (typically men))*
- **Interstate tensions:**
 - *Gendered motivations/roles (see list under crime/violence/extremism above)*

- **Summary of Gender-Climate-Security and GCS-Factor:**

A brief visual of the findings for each GCS-Factor section will be offered at the end of each subsection.

- **GCS-Factor Diagnostic Questions:**

At the end of this study in the Appendix is a list of Diagnostic Questions for each GCS-Factor based on the study findings. They offer a way for practitioners and policymakers to apply the proposed framework to their own analyses.

All elements of the proposed framework are visualized in .

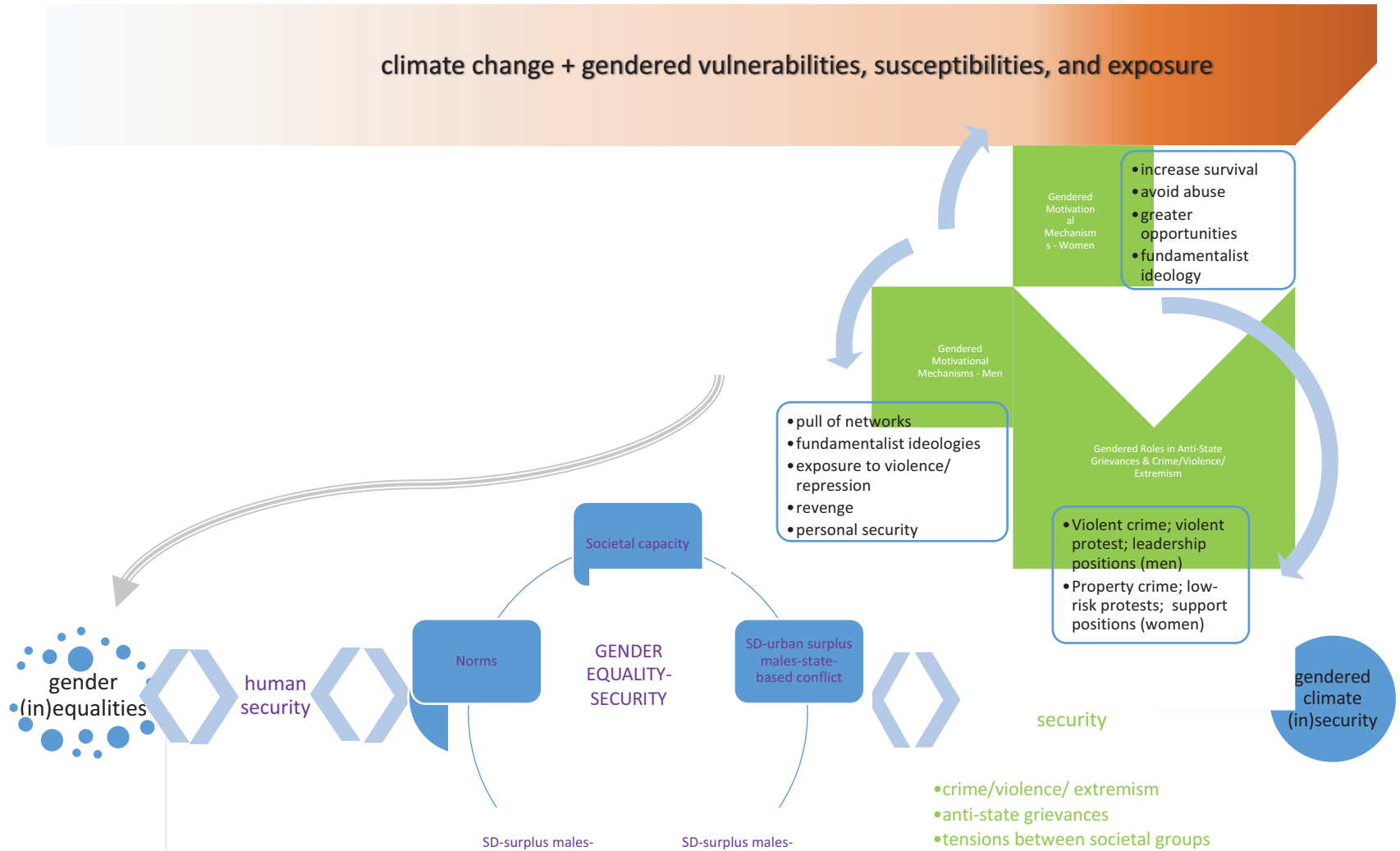


Figure 8. Illustration of Proposed Gender-Climate-Security Framework.

All elements of the proposed Gender-Climate-Security Framework combined.

Chapter 2.

Vulnerability

The *Vulnerability* of a system is a measure of its response to pressures and stressors and its ability to recover and maintain political stability following crises. In essence, it refers to a system's ability to plan for, mitigate, and prevent stressors such as climate hazards from developing into serious disasters, and as such *Vulnerability* is an important factor to consider when assessing gender-climate-security risks.⁷⁵ Climate disasters will intensify existing vulnerabilities in systems without adequate, gender transformative adaptation plans or funding to support those plans.⁷⁶

The following chapter is divided into two GCS-Phases of a system's *Vulnerability*: (1) *Coping Capacity* and (2) *(Lack of) Resilience*. Each GCS-Phase will cover several GCS-Factors, each of which will first be explored in terms of conventional versus feminist conceptions. This will be followed by an extensive exploration of the gendered *Human Security* aspects of that GCS-Factor, as well as the gendered *National/International Security* aspects of that GCS-Factor. At the start of each GCS-Factor section will be a table summarizing the *Gender-Climate-Security Linkage* findings within that section. These *Linkages* will be categorized based on the lenses of analysis developed in Chapter 1, and will be numbered and later identified in the longer text explaining the *Linkage*. For *Human Security*, (1) categories are based on Forsberg and

⁷⁵ Remmits, Dick, and Rademaker, "Climate Security Assessment," 26.

⁷⁶ Jeetendra Prakash Aryal et al., "Climate Change and Agriculture in South Asia: Adaptation Options in Smallholder Production Systems," *Environment, Development and Sustainability* 22, no. 6 (August 1, 2020): 5045–75, <https://doi.org/10.1007/s10668-019-00414-4>.

Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, and one of three '*socioeconomic development*' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*'). For *National/International Security*, findings are (2) organized first into one of four of Climate Diplomacy's '*Intermediary Mechanisms*' (*crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions*), and then further categorized according to (2A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (2B) patterns of gender and civic unrest participation (*anti-state grievances*) (section 1.2.3.3); and (2C) patterns of gendered motivations for armed combat participation (particularly *anti-state grievances, grievances between societal groups, and interstate tensions*) (section 1.2.3.4). At the end of this study, a list of diagnostic questions will be provided for each GCS-Factor section to facilitate the use of this proposed framework in analysis of real life climate insecurity scenarios.

2.1. Coping Capacity

The GCS-Phase *Coping Capacity* considers whether a system's elements-at-risk can efficiently cope with or recover from the physical shocks of climate-caused disasters in a timely fashion, "including the protection, rebuilding, or enhancement of its fundamental assets, structures and functions in the short to medium term."⁷⁷ Social adaptive and *Coping Capacity* literatures have been used to describe the ways in which a system is able to adapt to internal or external shocks such as those caused by climate

⁷⁷ Remmits, Dick, and Rademaker, "Climate Security Assessment," 26.

change. Though concerns about oversimplification of the political and policy elements of climate vulnerability have been raised by Turner and others, there is a general agreement on the strong linkages between *Coping Capacity*, climate change, and instability.⁷⁸ Naess et al. suggest that improving adaptive capacity by increasing access to capital, assets, and good governance can increase how well a system is able to absorb both short-term and longer-term climate- and conflict-related shocks, while conflict and fragility can weaken stability by intensifying political grievances, ideological and ethnic differences, state capacity and legitimacy, elite resource capture, cross-border and geopolitical dynamics, as well as economic and social inequalities.⁷⁹ Furthermore, Adger, et al. have found that climate and environmental hazards impact individual *Human Security* (an important element of collective adaptive and *Coping Capacity*) by decreasing physical, mental, and economic health and sources, while increasing fear of crime and violence.⁸⁰ This *Coping Capacity* section will be divided into five sub-sections, one for each of the following GCS-Factors: *Early Warning; Healthcare; Water, Sanitation, and Hygiene; Food Security, and Recent Shocks.*

⁷⁸ Matthew D. Turner, “Climate Change and Social Resilience: ‘Adaptive’ Conflict in the Sahel,” in *2009-2010 Colloquium* (Berkeley Workshop on Environmental Politics, Berkeley, California: University of Wisconsin-Madison, 2010), 1–20,
http://globetrotter.berkeley.edu/bwep/colloquium/papers/Turner_ClimateChangeAndSocialResilience.pdf.

⁷⁹ Lars Otto Naess, Jan Selby, and Gabrielle Daoust, “Climate Resilience and Social Assistance in Fragile and Conflict-Affected Settings” (Institute of Development Studies, 2022), 9–10,
<https://doi.org/10.19088/BASIC.2022.002>.

⁸⁰ W Neil Adger et al., “Human Security of Urban Migrant Populations Affected by Length of Residence and Environmental Hazards,” *Journal of Peace Research* 58, no. 1 (January 1, 2021): 50–66,
<https://doi.org/10.1177/0022343320973717>.

2.1.1. Early Warning

Table 6. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Early Warning.

<p>Dominant Approach: The HCSS Framework uses <i>Early Warning</i> to refer to a system’s capability to reduce vulnerabilities to rapid-onset climate events through limits on the losses, damages, and consequences of the event. The immediate impacts of an extreme climate event can be ameliorated through timely and well-communicated warning information that allows individuals to take action to reduce their exposure to the hazards.⁸¹ As such, the HCSS Framework relies on several indicators that enable an effective warning system, including mobile cellular subscriptions, use of the internet, adult literacy, and access to electricity.⁸²</p>
<p>FPEcon/FPEcol Approach: Foundational to examining every indicator within this proposed framework from a feminist perspective is the acknowledgement that gender inequalities are the result of uneven power relations within households and communities. Feminist scholar Kabeer conceptualizes empowerment as the combination of resources, agency, and achievement:</p> <p style="padding-left: 40px;">Empowerment thus refers to the expansion in people’s ability to make strategic life choices in a context where this ability was previously denied to them. Changes in the ability to exercise choice can be thought of in terms of changes in three inter-related dimensions which make up choice: resources, which form the conditions under which choices are made; agency which is at the heart of the process by which choices are made; and achievements, which are the outcomes of choices.⁸³</p> <p>This framing is useful in differentiating a conventional conception of access to <i>Early Warning</i> systems from a transformative feminist one, since unequal power structures commonly prevent women from accessing and using mobile technology, the internet, electricity, and educational systems. Traditional development philosophy focuses on the mechanics of improving access to vital tools and resources to deliver “functioning achievements,” but is usually conducted in a gender-blind fashion.⁸⁴ While this may offer functional improvement in access, it does nothing to transform the underlying gender norms that produced the gender inequalities. Thus, the following discussion will examine each aspect of <i>Early Warning</i> to understand gendered differences in access.</p>

Brief comparison of dominant and feminist definitions of Early Warning.

⁸¹ Remmits, Dick, and Rademaker, “Climate Security Assessment,” 66.

⁸² Remmits, Dick, and Rademaker, “Climate Security Assessment,” 67–68.

⁸³ Naila Kabeer, “Reflections on the Measurement of Women’s Empowerment,” in *Discussing Womens Empowerment Theory and Practice* (Sida Studies, 2001), 19, https://www.academia.edu/34551987/Discussing_womens_empowerment_theory_and_practice.

⁸⁴ Giulia M. Mininni, “Can Energy Empower Women?: A Case Study of the Solar Mamas’ Programme in Rural Rajasthan, India” (Doctoral Dissertation, Keele University, 2020), <https://eprints.keele.ac.uk/8731/>.

Table 7. Short Overview of the Early Warning Gender-Climate-Security Linkages.

Human Security⁸⁵	Gender Equality-Security Mechanisms
Linkage 2.1.1.A. Women lack access to electricity because of lower levels of education; finance/resource access and control; distribution of care responsibilities; restrictions on women's use of space and mobility services; lack of agency over their time/work; occupational segregation; different networks → women may not be able to power electronic early warning technologies → women may be unaware of impending climate disasters or evacuation instructions → women may not be able to engage in appropriate or timely responses to early warnings	<i>Societal capacity</i>
Linkage 2.1.1.B. Women are less likely to own and use mobile phone and internet technology due to social norms; lack of financial independence; cost of use and network quality/coverage; and gendered cyber violence → women may be unaware of impending climate disasters or evacuation instructions → women may be unable to engage in appropriate or timely responses to early warnings	<i>Societal capacity</i>
Linkage 2.1.1.C. Women lack early warning technology operations skills due to gender norms and illiteracy → women may be unaware of impending climate disasters or evacuation instructions → women may not be able to engage in appropriate or timely responses to early warnings	<i>Societal capacity</i>
Linkage 2.1.1.D. Gender norms may tie women to their homes and/or often preclude women from having control over decisions to evacuate → women often are responsible for evacuating all extended family members → women cannot engage in appropriate or timely responses to early warnings	<i>Societal capacity</i>

⁸⁵ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

National/International Security⁸⁶	Pathway	Motivational Mechanisms
Linkage 2.1.1.E. Lack of early warning systems may spark public discontent with government response to natural disasters → protests and demonstrations may erupt in response	Anti-state grievances	[Requires research] <i>Increase survival</i> (typically women) [∅] or <i>personal security</i> (typically men) [∅]

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. For a full explanation of each Linkage, see sections 2.1.1.1 and 2.1.1.2.

2.1.1.1. Early Warning and Human Security

To understand how the gendering of GCS-Factor *Early Warning* fits into the larger *Gendered Climate-Security Lifecycle*, the following discussion will examine aspects of four *Human Security Gender-Climate-Security Linkages* related to the following aspects of early warning systems: electricity, digital technology (mobile and internet), technology literacy, and evacuation agency.⁸⁷ The first three linkages connect to Kabeer’s conception of resources (conditions) necessary for making strategic life choices, while the fourth illustrates how women’s lack of agency can increase their vulnerability to extreme climate events. Given the central role *Early Warning* systems play in people’s

⁸⁶ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

⁸⁷ Note: For the purposes of this proposed framework, “early warning” will be used as defined by the UNISDR: “The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.” “2009 UNISDR Terminology on Disaster Risk Reduction” (United Nations International Strategy for Disaster Reduction (UNISDR), 2009), 12, https://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

ability to prepare for and recover from climate disasters, the *Gender Equality-Security Mechanism* most relevant to this discussion will be *societal capacity*.⁸⁸

Starting with electricity as necessary for *Early Warning* system access (Linkage 2.1.1.A), at baseline, and under ideal conditions, service provision to low-income urban regions is often challenging for centralized utility providers. Research by Kayaga et al. finds climate breakdown including floods, droughts, heatwaves, landslides, and other conditions are all expected to interrupt electricity services, and consequently *Early Warning* systems as well.⁸⁹ Governments and utility providers can take measures to prevent service disruptions, such as pulling energy systems back from coastlines to prepare for sea level rise; managing and forecasting river flooding; decentralizing the grid; adding energy power systems; and of course transitioning to renewable energy; however many of these solutions will be unattainable in the global south.⁹⁰

According to broad consensus, even before climate disasters impact electricity availability, a system's gendered institutions and structures may put women (especially those living in poverty) significantly behind men in terms of electricity access.⁹¹

Although there is a dearth of FPEcon literature on the subject, several other feminist disciplines have noted important resource constraints that play outsized roles in unequal

⁸⁸ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three '*socioeconomic development*' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*').

⁸⁹ Sam M Kayaga et al., "Cities and Extreme Weather Events: Impacts of Flooding and Extreme Heat on Water and Electricity Services in Ghana," *Environment and Urbanization* 33, no. 1 (April 1, 2021): 131–50, <https://doi.org/10.1177/0956247820952030>.

⁹⁰ Jinkyung Jeong and Hyun Ko, "Bracing for Climate Impact: Renewables as a Climate Change Adaptation Strategy" (Abu Dhabi: International Renewable Energy Agency, 2021), 17,36.

⁹¹ Soma Dutta, Annemarije Kooijman, and Elizabeth Cecelski, "Energy Access and Gender: Getting the Right Balance" (Washington, D.C.: SEAR, World Bank, 2017), 1, <https://documents1-worldbank-org.ezp-prod1.hul.harvard.edu/curated/en/463071494925985630/pdf/115066-BRI-P148200-PUBLIC-FINALSEARSFGenderweb.pdf> Gender-disaggregated data on the gender gap in electricity access is, however, lacking.

access to electricity. Osunmuyiwa and Ahlborg suggest that tangible and intangible resource restrictions like knowledge, networks, finance, and infrastructure may all impinge on women's electricity access.⁹² According to feminist scholars Pueyo and Maestre, women often do not benefit from electrification because of gendered structures that limit the roles they play in the labour market. They suggest that women's roles as workers and entrepreneurs shape how they consume electricity, with fewer opportunities to act as electricity customers or benefit from the productive use of energy:

Women's chances to be in employment are lower than those for men; they are more likely to be employed informally as contributing family workers or as self-employed workers; they are responsible for the largest share of unpaid work; and are overrepresented in a narrow range of sectors and occupations. ... women more likely to be engaged in agriculture, personal services, food preparation, retail trade and textiles. Men, on the contrary have businesses distributed across a wider range of sectors, and in particular in energy intensive sectors like construction, manufacture and repair... Women entrepreneurs concentrate in low productivity, profit, technology and growth sectors; are overrepresented in the smallest and informal enterprises; and are more likely to operate from home, which in some cases damages business performance.⁹³

Consequently, Pueyo and Maestre conclude there are multiple intersecting resource and context dimensions of gendered hierarchies that are responsible for shaping women's use of electricity, including: education access; resource access and control; unequal distribution of care responsibilities; restrictions on women's use of technology spaces and mobility services; women's lack of agency over their time and work; and occupational segregation.⁹⁴ Ultimately, without access to reliable, affordable electricity, women may

⁹² Olufolahan Osunmuyiwa and Helene Ahlborg, "Inclusiveness by Design? Reviewing Sustainable Electricity Access and Entrepreneurship from a Gender Perspective," *Energy Research & Social Science* 53 (July 2019): 145–58, <https://doi.org/10.1016/j.erss.2019.03.010>.

⁹³ Ana Pueyo and Mar Maestre, "Linking Energy Access, Gender and Poverty: A Review of the Literature on Productive Uses of Energy," *Energy Research & Social Science* 53 (July 2019): 170–81, <https://doi.org/10.1016/j.erss.2019.02.019>.

⁹⁴ Pueyo and Maestre, "Linking Energy Access, Gender and Poverty."

not be able to power the systems that provide *Early Warning* of predicted climate disasters.

Many of these same structural resource and context challenges are evident in persistent gender inequalities in ownership and use of telecommunications technologies that make accessing *Early Warning* systems difficult for many women (Linkage 2.1.1.B).⁹⁵ Women (as well as indigenous groups and older adults) fall behind men in terms of use and access to the internet and mobile phones.⁹⁶ According to the Global System for Mobile Communications (GSMA), women are 14% less likely to own a mobile phone (38% less for South Asian women) due to lack of financial independence and social norms that discourage women from access to mobile technology.⁹⁷ The GSMA has identified cost and network quality/coverage as the first and second most important factors preventing women from accessing mobile phone technology.⁹⁸ However, design of systems and services may also play a role. A report by the International Telecommunication Union on information and communication technology (ICT) use in disaster risk reduction (DRR) showed that women are rarely consulted during the design of ICT systems.⁹⁹ Additionally, gender-based cyber violence, misogyny, and harassment are now recognized as global threats to the safety of women and girls, and consequently,

⁹⁵ Shireen Santosham and Dominica Lindsey, “Connected Women: Bridging the Gender Gap - Mobile Access and Usage in Low- and Middle-Income Countries” (GSMA, 2015), <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/Connected-Women-Gender-Gap.pdf>.

⁹⁶ Samia Melhem, Claudia Morell, and Nidhi Tandon, “Information and Communication Technologies for Women’s Socio-Economic Empowerment,” Working Papers (The World Bank, October 2, 2009), <https://elibrary-worldbank-org.ezp-prod1.hul.harvard.edu/doi/abs/10.1596/978-0-8213-8133-5>.

⁹⁷ Santosham and Lindsey, “Connected Women: Bridging the Gender Gap - Mobile Access and Usage in Low- and Middle-Income Countries.”

⁹⁸ Santosham and Lindsey, “Connected Women: Bridging the Gender Gap - Mobile Access and Usage in Low- and Middle-Income Countries,” 42.

⁹⁹ im Mallalieu, “Women, ICT and Emergency Telecommunications: Opportunities and Constraints” (International Telecommunication Union, 2020), <https://reliefweb.int/sites/reliefweb.int/files/resources/Full-report.pdf>.

are deterrents to the uptake of these technologies among women.¹⁰⁰ On the other hand, safe access to digital technologies has been shown to be a lifeline of safety to women and girls, and a means by which to report and receive support following acts of violence, including during natural disasters.¹⁰¹ As such, women lacking both electricity as well as telecommunications technology are at a significant disadvantage in terms of receiving *Early Warnings* of expected extreme weather events.

Third, as will be discussed at length in GCS-Factor *Education*, gendered power structures also limit women's access to skill development resources and educational systems which can impede their trust and confidence in using such systems (Linkage 2.1.1.C). Notably, cultural norms may preclude women from learning how to use mobile phones, the internet, and electricity technology, leading to women's decreased confidence and avoidance of these tools.¹⁰² Combined, gender inequalities in digital (mobile and internet) technology, electricity, and literacy access increase women's risk in climate disaster scenarios. By way of example, a study by Brown et al. of *Early Warning* systems in Nepal and Peru showed most men (71%) received alerts through formal systems (such as government officials, NGOs, meteorology and hydrology departments, and the like), while only 51% of women received any kind of warning, and most of the warnings women received came through informal systems (such as family members, community members, neighbours, and task groups).¹⁰³

¹⁰⁰ "Gender and ICT," Sida, 2015, 3, <https://www.sida.se/en/publications/gender-and-ict>.

¹⁰¹ "Unsafe in the City: The Everyday Experiences of Girls and Young Women" (Plan International Australia, July 2018), 8–9, <https://www.plan.org.au/publications/unsafe-in-the-city-the-everyday-experiences-of-girls-and-young-women/>.

¹⁰² Ricardo Gomez, "Gender and Public Access Computing: An International Perspective," *Electronic Journal on Information Systems in Developing Countries* 43, no. 5 (October 5, 2010): 1–17.

¹⁰³ Sarah Brown et al., "Gender Transformative Early Warning Systems: Experiences from Nepal and Peru" (Practical Action, March 2019), 20, <https://floodresilience.net/resources/item/gender-transformative-early-warning-systems-experiences-from-nepal-and-peru/>.

Adding to these challenges are two gendered power hierarchy factors that further hamper women's ability to effectively make strategic life choices through information garnered from *Early Warning* systems (Linkage 2.1.1.D). The first is that, as household heads, men often make decisions for their entire families (often without consulting their women partners) about how to respond to *Early Warnings*, leaving women little choice about whether or not to evacuate.¹⁰⁴ Second, because of a lack of agency in choosing whether or not to evacuate, as well as due to the fact that women's household and care responsibilities are far more likely to keep women at home prior to disasters (often without their male partners), women are frequently tasked with evacuating all remaining family members to safety alone.¹⁰⁵ This adds extra complexity to women's already precarious circumstances. Any disruption of an individual's ability to access *Early Warning* systems may result in their being late or the last to evacuate, putting them at greater risk of injury or death.¹⁰⁶

The preceding discussion has argued that important elements of *Early Warning* systems (electricity, digital technology including mobile and internet, technology literacy, and evacuation decision-making) play important roles in people's climate *Coping Capacity*, yet are highly gendered. Gendered barriers preventing women from taking advantage of *Early Warning* systems include a lack of agency, limited access to resources such as electricity, and mobile and internet technology, as well as limited experience and confidence with these technologies. Without *Early Warning* system access, women's

¹⁰⁴ Sarah Brown et al., "Gender and Age Inequality of Disaster Risk" (Geneva: UN Women and UNICEF, December 2019), 29,

https://www.preventionweb.net/files/72229_bls19312unwdisasterriskreport003web.pdf.

¹⁰⁵ Brown et al., "Gender and Age Inequality of Disaster Risk," 29.

¹⁰⁶ Eric Neumayer and Thomas Plümer, "The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002," *Annals of the Association of American Geographers* 97, no. 3 (2007): 551–66, <https://doi.org/10.1111/j.1467-8306.2007.00563.x>.

climate *Coping Capacity* may be severely hindered in the face of climate breakdown. Using Forsberg and Olsson's model, these types of gendered barriers that decrease women's education, empowerment, and networks may result in fewer social resources available to a community, and an increased likelihood of the community resorting to non-peaceful conflict resolution as a result.

Considering gender transformative solutions that invest in women to counter these challenges, FPEcon suggests that rather than merely looking at solving the mechanics of access to the components of an *Early Warning* system, the gendered nature of technologies must be examined for ways to transform the underlying gendered power imbalances. Feminist technoscience scholar Faulkner contends that technology such as *Early Warning* systems are gendered, and primarily the domain of men; men make decisions about how technologies are developed and experience far better access to technology as well.¹⁰⁷ Furthermore, Bray argues that gender and technology coproduce one another, in that those who design technologies also design society, often in highly gendered ways.¹⁰⁸ Going beyond conventional *Early Warning* access approaches allows for these gendered systems and technologies to be re-designed in ways that transform power hierarchies, and offer every human a full range of choices for accessing *Early Warning* systems. Consequently, "functioning achievements" become "transformative agency," which offers improved skills, knowledge, and capabilities, as well as women's

¹⁰⁷ Wendy Faulkner, "The Technology Question in Feminism: A View from Feminist Technology Studies," *Women's Studies International Forum* 24, no. 1 (January 1, 2001): 79–95, [https://doi.org/10.1016/S0277-5395\(00\)00166-7](https://doi.org/10.1016/S0277-5395(00)00166-7).

¹⁰⁸ Francesca Bray, "Gender and Technology," *Annual Review of Anthropology* 36, no. 1 (2007): 37–53, <https://doi.org/10.1146/annurev.anthro.36.081406.094328>.

input on design and service delivery, to achieve higher order choice for women and other marginalized groups.¹⁰⁹

2.1.1.2. Early Warning and National/International Security

Examining the *National/International Security* aspects of the *Gendered Climate-Security Lifecycle*, literature on the connection between lack of access to *Early Warning* systems and climate change concerning *crime/violence/extremism*, *grievances between societal groups*, and *interstate tensions* appears to be scant.¹¹⁰ However, when governments fail to provide public *Early Warning* systems and timely messages of impending disasters to their people, *anti-state grievances* are not uncommon (Linkage 2.1.1.E). Williams has noted the possibility for there to be significant ramifications for governments should *Early Warning* systems not be in place for natural disasters such as those caused by climate change: “The failure to ensure adequate preparedness against such predictable risks [hurricanes, droughts] would indicate obvious negligence on the part of government, expose leaders to heavy criticism and thus create a very high political cost.”¹¹¹ Furthermore, Choudhury, Cohen and Werker, Ide, and others have noted the possible development of unrest and uprisings in response to poor government preparedness and response to natural disasters throughout history.¹¹² Though the literature

¹⁰⁹ Mininni, “Can Energy Empower Women?”

¹¹⁰ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

¹¹¹ Gareth Williams, “Study on Disaster Risk Reduction, Decentralization and Political Economy,” Global Assessment Report on Disaster Risk Reduction (ISDR & UNDP, March 2011), 23, https://www.preventionweb.net/english/hyogo/gar/2011/en/bgdocs/Williams_2011.pdf Clarification mine.

¹¹² Zahidul Arefin Choudhury, “Politics of Natural Disaster: How Governments Maintain Legitimacy in the Wake of Major Disasters, 1990-2010” (University of Iowa, 2013), https://iro.uiowa.edu/discovery/delivery/01IOWA_INST:ResearchRepository/12730519020002771?l#1373

does not provide a gender perspective, given that disruptions related to a lack of *Early Warning* access could result in significant damage to property and loss of life, it may be reasonable to study whether *anti-state grievances* are motivated either by desire to *increase survival* (typically women) or *personal security* (typically men).

2.1.1.3. Summary of Gender-Climate-Security and Early Warning Systems

A summary visualizing how *Early Warning Systems* factor into the *Gender-Climate-Security* framework can be found in Figure 9. A list of Diagnostic Questions in Table 49 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

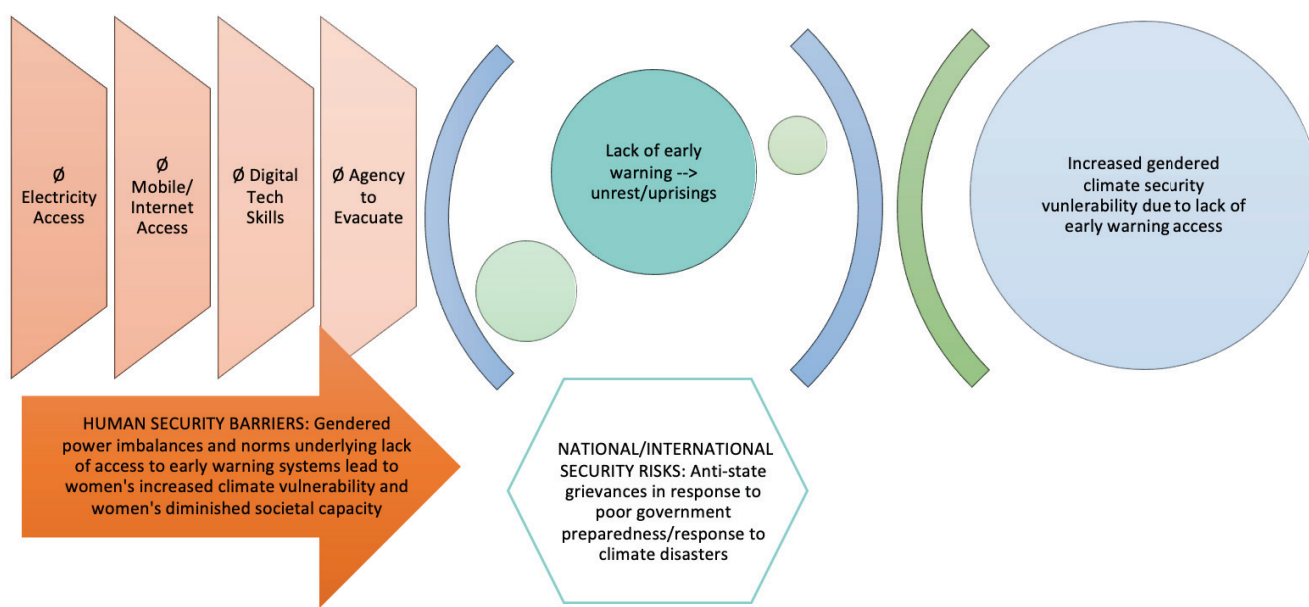


Figure 9. Gendered Climate Security Vulnerabilities Due to Lack of Early Warning Systems.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Early Warning Systems.

2.1.2. Healthcare

Table 8. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Healthcare.

Dominant Approach: Measures the availability and quality of health and medical care services as a determinate of natural disaster *Coping Capacity*. The HCSS framework tracks number of hospital beds per 1,000 persons as well as current health expenditure as a percentage of GDP.¹¹³

FPEcon/FPEcol Approach: Measuring *Healthcare* only by the availability of hospital beds and health expenditures does not provide an accurate picture of the role *Healthcare* may play in the *Coping Capacity* of a community or for individuals. In fact, there is a strong body of literature showing that excessive *Healthcare* spending does not increase welfare.¹¹⁴ For instance, the United States spends close to twice as much as 10 other high-income countries on medical care, and yet performs less well on many health outcomes.¹¹⁵ Of particular importance to understanding the status of a state's *Healthcare* system is unpacking who has access to *Healthcare*, and who can afford and therefore receive the *Healthcare*.

FPEcons argues that power and privilege inequalities that exist because of a system of patriarchy result in women and men typically having different experiences of and access to health and *Healthcare* systems on various levels.¹¹⁶ These include inequities within and without *Healthcare* systems, on individual, structural, and global levels. A helpful feminist theory for this discussion is social reproduction.¹¹⁷ In particular, this proposed *Gender-Climate-Security Framework* will frequently return to the following three elements of social reproduction theory as outlined by Rai et al.:¹¹⁸

- Biological reproduction (including producing labour) as what is required to maintain family and intimate relationships, including the provision of the sexual, emotional, and affective services;

¹¹³ "Hospital Beds (per 1,000 People)," The World Bank, accessed May 17, 2022, <https://data.worldbank.org/indicator/SH.MED.BEDS.ZS>; "Current Health Expenditure (% of GDP)," The World Bank, accessed May 17, 2022, <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS>.

¹¹⁴ Henry J. Aaron and Paul B. Ginsburg, "Is Health Spending Excessive? If So, What Can We Do About It?," *Health Affairs* 28, no. 5 (September 2009): 1260–75, <https://doi.org/10.1377/hlthaff.28.5.1260>.

¹¹⁵ Irene Papanicolaou, Liana R. Woskie, and Ashish K. Jha, "Health Care Spending in the United States and Other High-Income Countries," *JAMA* 319, no. 10 (March 13, 2018): 1024–39, <https://doi.org/10.1001/jama.2018.1150>.

¹¹⁶ Iffath Unissa Syed, "Feminist Political Economy of Health: Current Perspectives and Future Directions," *Healthcare* 9, no. 2 (February 22, 2021): 1–233, <https://doi.org/10.3390/healthcare9020233>.

¹¹⁷ Tithi Bhattacharya, *Social Reproduction Theory: Remapping Class, Recentering Oppression* (London: Pluto Press, 2017).

¹¹⁸ Shirin Rai, Catherine Hoskyns, and Dania Thomas, "Depletion and Social Reproduction," in *Centre for the Study of Globalisation and Regionalisation* (University of Warwick, 2010), 3.

- Unpaid production of goods and services in the home, including various types of care, and meeting community needs through social provisioning and voluntary work;
- Reproduction of culture and ideology, including activities that stabilize dominant social relations.

The ensuing discussion on GCS-Factor *Healthcare* will examine the broad gendered inequalities within *Healthcare* systems globally using this model, with particular attention to three key issues for women: sexual and reproductive health and rights (SRHR), child marriage, and sexual- and gender-based violence (SGBV). Other sections within this proposed framework will explore healthcare-related topics in greater depth, including water, sanitation, food security, life expectancy, and so on.

Brief comparison of dominant and feminist definitions of Healthcare.

Table 9. Short Overview of the Healthcare Gender-Climate-Security Linkages.

Human Security¹¹⁹	Gender Equality-Security Mechanisms
Linkage 2.1.2.A. Increased carbon emissions deteriorate human health → climate change drives up healthcare expenses → women living with poverty may find they cannot afford medical care following climate breakdowns/disasters	<i>Societal capacity</i>
Linkage 2.1.2.B. Unique health vulnerabilities during pregnancy may increase a pregnant person's exposure to climate-related health risks → pregnant persons may be more likely to contract infectious diseases during pregnancy or experience lower birth weights, increased likelihood of preterm birth, preeclampsia, hypertension, or other pregnancy complications during heatwaves	<i>Societal capacity</i>
Linkage 2.1.2.C. Gendered norms/behaviours related to firefighting and first responder work, boys' play behaviour, and migration for work may increase men's exposure to climate-related health risks → men may be more likely to perish in bush fires, contract urban vector-borne diseases, suffer from depression, or higher rates of flood/storm or heatwave mortality (depending on the community norms)	<i>Societal capacity</i>

¹¹⁹ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security¹¹⁹	Gender Equality-Security Mechanisms
Linkage 2.1.2.D. Cultural norms may hamper women's access to sexual and reproductive health services → infant and maternal health may be compromised → women may have more pregnancies and contract more STDs → larger family sizes and poorer health may increase economic and unpaid care pressures on women	<i>Societal capacity</i>
Linkage 2.1.2.E. Gender inequalities may prevent disaster planners and relief/recovery planners from consulting women → women's unique healthcare needs and requirements for hygiene, breastfeeding, and menstruation support may be ignored → women may face increased mortality risks following disasters if their needs are not taken into consideration → women may have lower capacity to contribute in community disaster recovery	<i>Societal capacity</i>
Linkage 2.1.2.F. Gender inequalities in food distribution following climate disasters may result in women receiving less food → women may face higher rates of food insecurity	<i>Societal capacity</i>
Linkage 2.1.2.G. Climate disasters may prompt increases in rates of child marriage and reductions in the age at which girls are married → young married girls may experience higher rates of food insecurity, STDs, and early pregnancy → young pregnant girls may experience higher rates of eclampsia, postpartum hemorrhage, obstructed labour, fistula, and maternal mortality	<i>Societal capacity</i>
Linkage 2.1.2.H. Climate disasters may prompt increases in rates of child marriage and reductions in the age at which girls are married → young married girls may experience lower rates of education, literacy, and emotional support → young married girls may exhibit lower resiliency to future climate or traumatizing events	<i>Societal capacity</i>
Linkage 2.1.2.I. Slow- and sudden-onset climate breakdown tends to increase SGBV rates → SGBV undermines women's food and economic security → SGBV may restrict women's access to information, decision-making; opportunities to learn, experiment, and explore climate adaptation; or power to hold leaders accountable	<i>Societal capacity</i>

National/International Security¹²⁰	Pathway	Motivational Mechanisms
Linkage 2.1.2.J. Health crises increase both obstacles to and opportunities for criminal activity → may lead to increases in street crime, illicit/illegal trade, cyber crime, grifting, organized criminal group activity, trade in counterfeit medical supplies, corruption, or attacks on politicians/journalists/minorities → such activity may be overlooked by law enforcement due to overwhelm or tasks related to the health crisis → communities may experience increased fragility	Crime/violence/extremism	[Requires research] <i>Increase survival and greater opportunities (typically women),[∅] pull of networks and personal security (typically men)[∅]</i>
Linkage 2.1.2.K. Weakened state capacity (especially when combined with higher inequality, lower economic growth, or existing social unrest) may lead to an inability to handle a climate-caused health crisis → may drive increases in dissatisfaction with government → anti-state actors may seize the opportunity to exploit government weaknesses through propaganda/misinformation → civil unrest and political violence may increase	Anti-state grievances	[Requires research] <i>Avoid abuse (typically women)[∅] and exposure to violence/repression (typically men)[∅]</i>
Linkage 2.1.2.L. Climate-induced health crises may trigger economic/political instability (especially in fragile regions) → may increase fears/resentment of the ‘other’ → can trigger backlash against ‘othered’ groups (especially if viewed as ‘disease carriers’)	Grievances between societal groups	[Requires research] <i>Increase survival (typically women)[∅] and pull of networks (typically men)[∅]</i>
Linkage 2.1.2.M. Infections disease crises triggered by climate breakdown may weaken military personnel through heightened infection rates → may reduce military readiness → as governments and international bodies are	Interstate tensions	[Requires research] <i>Increase survival (typically women)[∅] and pull of networks</i>

¹²⁰ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security ¹²⁰	Pathway	Motivational Mechanisms
distracted, conflicts may erupt or worsen → can lead to change in regional balances of power		(typically men) [∅]

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with a §; those with no research with ∅. For a full explanation of each Linkage, see sections 2.1.2.1 and 2.1.2.2.

2.1.2.1. Healthcare and Human Security

While it may be obvious that *Healthcare* is a significant GCS-Factor within *Gendered Climate-Security Lifecycle*, the *Gender-Climate-Security Linkages* may not be immediately be apparent.¹²¹ Given the toll climate change is likely to have on human bodies, the *societal capacity Gender Equality-Security Mechanism* will be most relevant to the analysis on what gendered impacts climate change will have on *Healthcare* systems. The following discussion of *Healthcare*'s role in human (climate) security will cover factors external to *Healthcare* systems that impact health outcomes (unpaid care work and social reproduction responsibilities), as well as five gendered pathways to inequalities within the *Healthcare* system (exposure; health behaviours; healthcare access; biased health systems; and biased health research, institutions, and data collection). Three special climate-healthcare topics (sexual and reproductive health and rights (SRHR), child marriage, and sexual- and gender-based violence (SGBV)) will also be discussed in greater detail.

¹²¹ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

A growing literature demonstrates a strong link between climate change and the quality and availability of *Healthcare*. A study by Akbar et al. shows a robust causal relationship between *Healthcare* expenditures, carbon emissions, and human development index: *Healthcare* investments increase with increased carbon emissions, while carbon emissions significantly deteriorate human health and wellness.¹²² The increase in demand for *Healthcare* services may come from many sources, including due to an increase in infectious water-borne and vector-borne disease types and geographical reach; air pollution that exacerbates asthma and cardiovascular diseases (to name a few health conditions); extreme heat that drives increases in depression and deaths from congestive heart failure; natural disasters that cause widespread injuries and death; and droughts that lead to food insecurity and nutrition-related diseases.¹²³ The WHO estimates that between 2030 and 2050, climate change will cause 250,000 excess deaths annually due to malnutrition, malaria, heat stress, and diarrhea, noting that many developing countries are ill-prepared to cope with the added strain on their already fragile health systems.¹²⁴

The health consequences of climate change will not be felt equally by women and men. Before women even enter a *Healthcare* system, they often lag behind men due to cultural and ideological structures and attitudes *outside* the *Healthcare* system. For instance, unpaid care responsibilities for children and other family members often prevent women from pursuing advanced education, thereby lowering lifetime earning capacity,

¹²² Minhas Akbar et al., “The Dynamic Association between Healthcare Spending, CO2 Emissions, and Human Development Index in OECD Countries: Evidence from Panel VAR Model,” *Environment, Development and Sustainability* 23, no. 7 (July 2021): 10470–89, <https://doi.org/10.1007/s10668-020-01066-5>.

¹²³ Eric C. Reese, “Climate Change: Is Healthcare Ready for All Its Threats?,” *Healthcare Financial Management* 74, no. 4 (April 2020): 28–31.

¹²⁴ “Climate Change and Health” (World Health Organization, October 30, 2021), <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>.

intensifying rates of poverty, and consequently reducing health outcomes.¹²⁵ Lower rates of compensation for paid work in traditional sectors also modifies women's health outcomes due to women's lower earnings and therefore smaller budgets available for healthy food; health, medical, dental, and vision care expenses; healthy housing and commutes; etc. (Linkage 2.1.2.A).¹²⁶

Additional barriers and inequities within the *Healthcare* system may further trigger poorer health outcomes for women. Rai et al.'s social reproduction theory, for instance, suggests women and men have gendered individual physiological differences, including women's biological reproduction health needs, that require unique biomedical research foci and approaches.¹²⁷ Heise et al. succinctly describe the baseline structural disadvantages that contribute to gender inequities in *Healthcare* and health outcomes:

...gender inequality and restrictive gender norms impact health through differential exposures, health-related behaviours and access to care, as well as how gender-biased health research and health-care systems reinforce and reproduce gender inequalities, with serious implications for health. The cumulative consequences of structured disadvantage, mediated through discriminatory laws, policies, and institutions, as well as diet, stress, substance use, and environmental toxins, have triggered important discussions about the role of social injustice in the creation and maintenance of health inequities, especially along racial and socioeconomic lines.¹²⁸

Furthermore, at a system's level, in biomedical research, even after 20 years of reform globally, women's health concerns are underfunded due to complexity, and women are still underrepresented as research participants and researchers, suggesting women's unique health needs are less understood and addressed than those of men, including those

¹²⁵ Graham S. Lowe, *Women, Paid/Unpaid Work, and Stress: New Directions for Research*, Background Paper (Canadian Advisory Council on the Status of Women) (Ottawa: Canadian Advisory Council on the Status of Women, 1989).

¹²⁶ Syed, "Feminist Political Economy of Health."

¹²⁷ Syed, "Feminist Political Economy of Health."

¹²⁸ Lori Heise et al., "Gender Inequality and Restrictive Gender Norms: Framing the Challenges to Health," *The Lancet* 393, no. 10189 (June 15, 2019): 2440, [https://doi.org/10.1016/S0140-6736\(19\)30652-X](https://doi.org/10.1016/S0140-6736(19)30652-X).

impacted by climate change.¹²⁹ Inequalities are further intensified in societies where girls and women are discriminated against because of their perceived lower value compared to boys and men.¹³⁰

Heise and colleagues offer five gendered pathways to health outcome inequality: gendered differences in exposure; gendered health behaviours; gendered impacts on accessing care; gender-biased health systems; and gender-biased health research, institutions, and data collection.¹³¹ Crucially, these factors result in less favourable health outcomes for many women globally.¹³² In a meta-analysis of gendered climate-related health inequalities, Sellers provides an overview of the latest research, which is summarized in Table 10.¹³³ Sellers' findings are organized according to Heise et al.'s pathways, excluding the fifth pathway related to research, institutions, and data (as this category has less immediate relevance to climate security).

Table 10. Four Pathways to Gendered Climate-Related Health Inequalities.

Gendered differences in exposure

Studies on gender and heat wave mortality show mixed results, with some indicating men are far more likely to die, and some finding women are more likely to die.

Men have a much higher mortality risk related to bush fires.

Women-headed households are more likely to experience food insecurity, and girls and

¹²⁹ James S. Economou, "Gender Bias in Biomedical Research," *Surgery* 156, no. 5 (November 1, 2014): 1061–65, <https://doi.org/10.1016/j.surg.2014.07.005>; Carolyn M. Mazure and Daniel P. Jones, "Twenty Years and Still Counting: Including Women as Participants and Studying Sex and Gender in Biomedical Research," *BMC Women's Health* 15, no. 1 (December 2015): 1–94, <https://doi.org/10.1186/s12905-015-0251-9>.

¹³⁰ Anne C. Larme, "Health Care Allocation and Selective Neglect in Rural Peru," *Social Science & Medicine* 44, no. 11 (June 1997): 1711–23, [https://doi.org/10.1016/S0277-9536\(96\)00373-5](https://doi.org/10.1016/S0277-9536(96)00373-5); Carol Vlassoff, "Gender Differences in Determinants and Consequences of Health and Illness," *Journal of Health, Population, and Nutrition* 25, no. 1 (March 2007): 47–61.

¹³¹ Heise et al., "Gender Inequality and Restrictive Gender Norms," 2443.

¹³² Larme, "Health Care Allocation and Selective Neglect in Rural Peru"; Vlassoff, "Gender Differences in Determinants and Consequences of Health and Illness."

¹³³ Sam Sellers, "Gender and Climate Change: A Closer Look at Existing Evidence (2016)" (Women's Environment and Development Organization, November 28, 2016), <https://wedo.org/gender-and-climate-change-a-closer-look-at-existing-evidence-ggca/>.

women tend to reduce the number of meals they eat as a result.

Men may be at greater risk of contracting dengue fever due to the fact that the disease is more common in urban areas (migration may increase the flow of men into urban areas more readily than women).

Some studies show women may experience higher rates of exposure to flood waters leading to higher rates of skin conditions.

Following natural disasters or periods of food insecurity, women tend to experience higher rates of stress-related disorders (such as PTSD or acute stress disorder), depression, and anxiety, though rates of depression among men who are first responders appears to be equal to that of women.

Women and men appear to be equally likely to commit suicide following a heatwave. However, in regions where climate change has increased drought, men who farm land impacted by drought are more likely to commit suicide than women.

Pregnant persons are more likely to contract some infectious diseases like dengue and malaria, and experience more adverse effects of many infectious diseases, including cholera, dengue fever, malaria, and schistosomiasis. Negative outcomes in pregnancy and maternal health include miscarriage, premature birth, and anemia.

Pregnant persons are more susceptible to adverse effects of extreme temperatures and stress from natural disasters, resulting in lower birth weights, increased likelihood of preterm birth, preeclampsia, hypertension, and other pregnancy complications. Children of such pregnancies may also be more likely to be diagnosed with autism or developmental delays.

Young boys who play near the water are at greater risk of schistosomiasis if those waters transmit the disease.

Gendered health behaviours

Heat wave-related deaths are higher among the isolated elderly; gendered mortality risks may be higher in societies where one gender of the elderly population is more socially isolated than the other.

There is a growing literature that shows in developing countries that women experience higher mortality rates due to storms and floods. Some studies suggest cultural norms are to blame, such as those that prevent women from learning to swim, removing heavy clothing, or seeking help from men. However, men may be more likely to perish in developed societies where men take part in risky rescue efforts, or where they are more likely to use a vehicle to try to escape the disaster.

Cultural practices such as son preference in many countries may lead girls and women to be the first to skip meals following a natural disaster, during periods of drought, or because of general food insecurity. Higher infant mortality among girls has been recorded in many regions as a result.

Women are more likely than men to be engaged in caring for sick individuals, and therefore may have a higher risk of contracting an infectious disease.

Women often cook in the early morning and late evenings, times when malaria vectors are more likely prevalent. However, men who work in the forest industry may be at greater risk due to their exposure to mosquito bites.

Men who are firefighters and construction workers may be more likely to come in

contact with contaminated flood waters, resulting in higher rates of skin conditions.

Rates of SGBV, human trafficking, and sexual exploitation of vulnerable women and children tend to increase following all manner of natural disasters.

In disaster shelters, migrant camps, and congregant facilities are often inadequate for gender-specific uses (such as bathrooms, washing facilities, etc.), leaving many women open to higher risks of SGBV.

Gendered impacts on accessing care

Some research indicates that cultural practices that forbid women from leaving their homes may prevent them from seeking care following a natural disaster, leading to a higher mortality risk.

Natural disasters tend to hamper access to sexual and reproductive health and rights services.

Gender-biased health systems

Disaster planning that ignores women's needs may be a factor in women's increased mortality risk during floods and storms.

In regions where men control food distribution, there may be a gender bias that results in women and children receiving less food.

In some societies, especially those in which women's modesty is culturally important, shelters are often constructed without consideration for women's hygiene, breastfeeding, menstruation privacy needs.

Gendered climate-health research summarized in Sellers, organized into Heise et al. four of five health pathways by this author.¹³⁴ The table contains discussion on Linkage 2.1.2.B, Linkage 2.1.2.C, Linkage 2.1.2.D, Linkage 2.1.2.E, and Linkage 2.1.2.F.

Based on the findings in Table 10, it's clear that climate *Coping Capacity* is dependent on access to good quality *Healthcare*. Importantly, dismantling the gendered structures that underpin the gendered health inequities will be extremely important for women to achieve the robust health outcomes they need to withstand the challenges of climate change. Furthermore, feminists generally argue against biological determinism, suggesting that socioeconomic, cultural, ethnic, and religious differences are important determinants of human health.¹³⁵ Arora-Johnsson, Carr, and Thompson, find that when

¹³⁴ Sellers, "Gender and Climate Change."

¹³⁵ Syed, "Feminist Political Economy of Health."

assessing the vulnerability of a population to climate change, a binary approach to gender tends to overlook the specific challenges facing the most marginal and vulnerable.¹³⁶ Consequently, when examining the culture, institutions, and structures that inform how gender intersects with climate security in a particular locale, it would be important to employ an expanded, rigorous intersectional gender analysis for understanding gender and identity on topics such as *Healthcare*.

Three of the *Healthcare* topics summarized in Table 10 require additional exploration because of their uniquely gendered impacts on women's *Coping Capacity* in a warming world (all of which relate to the *societal capacity Gender Equality-Security Mechanism*): SRHR, child marriage, and SGBV. SRHR are central to women's health and *Coping Capacity* in crises, yet SRHR are frequently neglected in crisis situations (Linkage 2.1.2.D).¹³⁷ The links between SRHR and a woman's wellbeing are many. SRHR services are recognized as a human right, in part because readily available SRHR services improve child and maternal health, and reduce rates of sexually-transmitted diseases (STDs) and other communicable diseases.¹³⁸ Crucially, without full sexual and reproductive health rights, women and girls cannot fully participate in all social,

¹³⁶ Edward R. Carr and Mary C. Thompson, "Gender and Climate Change Adaptation in Agrarian Settings: Current Thinking, New Directions, and Research Frontiers: Gender and Climate Change Adaptation in Agrarian Settings," *Geography Compass* 8, no. 3 (March 2014): 182–97, <https://doi.org/10.1111/gec3.12121>; Arora-Jonsson, "Virtue and Vulnerability."

¹³⁷ Mihoko Tanabe et al., "Tracking Humanitarian Funding for Reproductive Health: A Systematic Analysis of Health and Protection Proposals from 2002-2013," *Conflict and Health*, Taking Stock of Reproductive Health in Humanitarian, 9, no. Suppl 1 (2015), <https://doi.org/10.1186/1752-1505-9-S1-S2>.

¹³⁸ Jasmine Sprague Hepburn et al., "Review of the Inclusion of SRHR Interventions in Essential Packages of Health Services in Low- and Lower-Middle Income Countries," *Sexual and Reproductive Health Matters* 29, no. 1 (January 1, 2021): 441–52, <https://doi.org/10.1080/26410397.2021.1985826>; Evelyne Opondo, "Perspectives of an SRHR Advocate on the Impact of the Global Gag Rule in Kenya," *Sexual and Reproductive Health Matters* 28, no. 3 (December 17, 2020): 64–67, <https://doi.org/10.1080/26410397.2020.1795449>.

political, and economic levels of society.¹³⁹ For instance, since lower fertility rates offer women more opportunities to improve their socioeconomic standing, greater sexual agency is critical for reducing poverty, and has been shown to have economic benefits across generations.¹⁴⁰ As such, the power structures that underpin the lack of SRHRs must be removed for full gender equality to be achieved.

Furthermore, SRHRs are directly tied to climate *Coping Capacity*, especially given that SRHR services are often disrupted following a natural disaster.¹⁴¹ The Population Reference Bureau has summarized numerous studies that show when women have access to sufficient SRHR tools such as family planning and reproductive health services, they achieve greater *Coping Capacity* along several pathways.¹⁴² First, they and their children are healthier (a fundamental element of climate *Coping Capacity*). Second, women are more empowered, which gives them greater ability to engage in adaptation efforts. And third, smaller families have smaller demands for climate-sensitive resources like food and water. Similarly, a study of linkages between family planning, maternal and child health, and *Coping Capacity* in Tanzania by Hardee et al. shows households that

¹³⁹ “Sexual and Reproductive Health and Rights” (UN OHCHR Department for International Development, July 2004), https://www2.ohchr.org/english/issues/development/docs/rights_reproductive_health.pdf; Preethi Sundaram, “Sexual and Reproductive Health and Rights: The Key to Gender Equality and Women’s Empowerment” (The International Planned Parenthood Federation, 2020), https://www.ippf.org/sites/default/files/2020_gender_equality_report_web.pdf.

¹⁴⁰ Ana Langer et al., “Women and Health: The Key for Sustainable Development,” *The Lancet* 386, no. 9999 (September 2015): 1165–1210, [https://doi.org/10.1016/S0140-6736\(15\)60497-4](https://doi.org/10.1016/S0140-6736(15)60497-4).

¹⁴¹ Therese McGinn et al., “Shelter from the Storm: A Transformative Agenda for Women and Girls in a Crisis-Prone World” (New York, NY: United Nations Population Fund, 2015), 40.

¹⁴² Kathleen Mogelgaard and Kristen P. Patterson, “Building Resilience through Family Planning and Adaptation Finance,” Policy Brief (Washington, D.C.: Population Reference Bureau, March 2018), https://www.prb.org/wp-content/uploads/2018/03/18-057-Building-Resilience-Through-FP-and-Adaptation-Finance-2018-03-20-1555_FINAL.pdf.

score highly on questions related to SRHR factors also score higher in factors related to overall *Coping Capacity*.¹⁴³

Closely related to SRHR is the issue of child marriage and the ways in which it intersects with climate breakdown (Linkage 2.1.2.G). Studies in Bangladesh, Uganda, Kenya, Pakistan, South Sudan, and Niger, among others, have demonstrated that rates of child marriage may increase and the age at which girls are married may decrease following natural disasters such as floods, hurricanes, droughts, and tornadoes.¹⁴⁴ There are several reasons for earlier and more frequent marriage of girl children. During periods of strained natural resources such as food or water, parents facing malnutrition and hunger may choose to marry off their girls to allocate resources for family survival.¹⁴⁵ Similarly, marriage may be used as a way to generate income for a family through bride price or dowry payments, which become even more important during crises.¹⁴⁶ Since young girls are often perceived as likely to engage in acts of sexual immorality, marriage is seen as a way to avoid impropriety during periods of greater strain.¹⁴⁷ Marriage may

¹⁴³ Karen Hardee et al., “Family Planning and Resilience: Associations Found in a Population, Health, and Environment (PHE) Project in Western Tanzania,” *Population and Environment* 40, no. 2 (December 2018): 204–38, <https://doi.org/10.1007/s11111-018-0310-x>.

¹⁴⁴ Christie McLeod, Heather Barr, and Katherina Rall, “Does Climate Change Increase the Risk of Child Marriage? A Look at What We Know--And What We Don't--With Lessons from Bangladesh & Mozambique,” *Columbia Journal of Gender and Law* 38, no. 1 (2019): 115, <https://doi.org/10.7916/cjgl.v38i1.4604>; M. Niaz Asadullah, Kazi Md Mukitul Islam, and Zaki Wahhaj, “Child Marriage, Climate Vulnerability and Natural Disasters in Coastal Bangladesh,” *Journal of Biosocial Science* 53, no. 6 (November 2021): 948–67, <https://doi.org/10.1017/S0021932020000644>; Christie McLeod, Heather Barr, and Katherina Rall, “Does Climate Change Increase the Risk of Child Marriage? A Look at What We Know--And What We Don't--With Lessons from Bangladesh & Mozambique,” *Columbia Journal of Gender and Law* 38, no. 1 (2019): 96–145, <https://doi.org/10.7916/cjgl.v38i1.4604>.

¹⁴⁵ Juliette Myers, “Untying the Knot: Exploring Early Marriage in Fragile States” (World Vision, March 2013), 24, https://reliefweb.int/sites/reliefweb.int/files/resources/UNTYING_THE_KNOT_-_March_2013.pdf.

¹⁴⁶ Lucia Corno and Alessandra Voena, “Selling Daughters: Child Marriage, Income Shocks and the Bride Price Tradition” (Stanford), 56, accessed April 4, 2022, https://avoena.people.stanford.edu/sites/g/files/sbiybj24271/files/media/file/cornovoena_feb2021_final.pdf.

¹⁴⁷ Ediomio Brendan, “Girl Child Marriage in Nigeria: Problems, Panacea and Prospects,” *Academia*, accessed April 4, 2022, https://www.academia.edu/34484780/Girl_Child_Marriage_in_Nigeria_Problems_Panacea_and_Prospects.

also be viewed as protection against sexual violence, which tends to increase following natural disasters and slow-onset climate crises like droughts.¹⁴⁸ However, it should be noted that unmarried girls are often *victims* of sexual violence, and may be forced into *early marriage to the perpetrators of rape*, making such relationships highly coercive and traumatizing.¹⁴⁹

Child marriage is therefore a *Healthcare* challenge that may increase in intensity as climate change accelerates, compounding the health risks to young girls. Despite the fact that early marriage is often used to ensure the survival of girl children, girls often find their health declines following marriage at a young age. For instance, they may lack the nutrition they need and are often hungry.¹⁵⁰ Additionally, studies by Laga et al. and Nunn et al., among others, show married girl children are more likely to become infected with sexually-transmitted disease (STDs), especially HIV and human papilloma virus (HPV).¹⁵¹ Consequently, girls who marry young are also at higher risk of cervical cancer (caused by HPV).¹⁵² Very young girls are often married into families eager for more children, resulting in pressure from the husband and mother-in-law to conceive as soon as

¹⁴⁸ Claudia Felten-Biermann, “Gender and Natural Disaster: Sexualized Violence and the Tsunami,” *Development* 49, no. 3 (September 2006): 82–86, <http://dx.doi.org/10.1057/palgrave.development.1100276>; Myers, “Untying the Knot,” 25.

¹⁴⁹ Felten-Biermann, “Gender and Natural Disaster”; Myers, “Untying the Knot,” 25.

¹⁵⁰ Bassam Abu Hamad et al., “‘No One Should Be Terrified Like I Was!’ Exploring Drivers and Impacts of Child Marriage in Protracted Crises Among Palestinian and Syrian Refugees,” *The European Journal of Development Research* 33, no. 5 (October 1, 2021): 1209–31, <https://doi.org/10.1057/s41287-021-00427-8>.

¹⁵¹ M. Laga et al., “To Stem HIV in Africa, Prevent Transmission to Young Women,” *AIDS* 15, no. 7 (May 2001): 931–34, <https://doi.org/10.1097/00002030-200105040-00014>; A. J. Nunn et al., “Risk Factors for HIV-1 Infection in Adults in a Rural Ugandan Community: A Population Study,” *AIDS* 8, no. 1 (January 1994): 81–86, <https://doi.org/10.1097/00002030-199401000-00012>.

¹⁵² R. Schmauz et al., “Multiple Infections in Cases of Cervical Cancer from a High-Incidence Area in Tropical Africa,” *International Journal of Cancer* 43, no. 5 (May 15, 1989): 805–9, <https://doi.org/10.1002/ijc.2910430511>; L. Kuhn et al., “Human Papillomavirus DNA Testing for Cervical Cancer Screening in Low-Resource Settings,” *Journal of the National Cancer Institute* 92, no. 10 (May 17, 2000): 818–25, <https://doi.org/10.1093/jnci/92.10.818>.

possible.¹⁵³ Both pregnancy and the delivering of children by young girls results in higher health risks. Pregnant girls are at greater risk of contracting diseases like malaria, which is more deadly because of increased complications during pregnancy.¹⁵⁴ The health risks to girl children delivering their babies includes higher rates of eclampsia, postpartum hemorrhage, obstructed labour potentially leading to a fistula (fecal and/or urinary incontinence and peroneal nerve palsy which causes humiliation and ostracism), and maternal mortality.¹⁵⁵ Additionally, girls who give birth as children often come to the experience without education or emotional support, and therefore find the experience traumatizing and difficult.¹⁵⁶ Needless to say, all of the health risks associated with child marriage are likely to decrease the climate *Coping Capacity* of these girls and their children and communities.

Finally, SGBV also reduces the *Coping Capacity* of its victims, most commonly women and girls (Linkage 2.1.2.I). SGBV is an overt expression of unequal power relations between women and men, resulting in a cascade of negative consequences that further entrench these gender inequalities—consequences such as inability to access and exchange information; inaccessibility to decision-making processes; inability to learn, experiment, and explore new ideas; and inability to hold leaders accountable or question power relations.¹⁵⁷ SGBV may also increase a woman’s food insecurity according to Lentz’s research which suggests that domestic violence may prompt women to reduce the

¹⁵³ Hamad et al., “‘No One Should Be Terrified Like I Was!’ Exploring Drivers and Impacts of Child Marriage in Protracted Crises Among Palestinian and Syrian Refugees.”

¹⁵⁴ Nawal M. Nour, “Health Consequences of Child Marriage in Africa,” *Emerging Infectious Diseases* 12, no. 11 (November 2006): 1644–49, <https://doi.org/10.3201/eid1211.060510>.

¹⁵⁵ Nour, “Health Consequences of Child Marriage in Africa.”

¹⁵⁶ Hamad et al., “‘No One Should Be Terrified Like I Was!’ Exploring Drivers and Impacts of Child Marriage in Protracted Crises Among Palestinian and Syrian Refugees.”

¹⁵⁷ Virginie Le Masson et al., “Violence Against Women and Girls and Resilience” (London: BRACED, 2019), 25, 36–50.

number of meals or food quality they eat in order to avoid violent interactions with a partner, which may lead to nutritional deficiencies.¹⁵⁸

Additionally, a growing body of literature shows that SGBV impacts women's ability to work, often decreasing the number of hours and quality of output she can produce.¹⁵⁹ A reduction in work can therefore increase women's economic insecurity as well. Several larger studies have shown a link between SGBV and overall *Coping Capacity*. Tsirigotis and Łuczak use the 'Ego Resiliency Scale' to demonstrate that the psychology and physical trauma of domestic violence lowers victim *Coping Capacity* below that of the general population, especially if perpetrated by father figures.¹⁶⁰ Le Masson et al. have used empirical evidence to show that 'everyday violence' undermines coping capacities during environmental change at the individual, household, and community level.¹⁶¹

Not surprisingly, these combined elements—unpaid care and social reproduction work disadvantaging women outside of the *Healthcare* system; five gendered pathways to health inequity within the *Healthcare* system such as exposure, health behaviours, healthcare access, biased health systems, and biased health research, institutions, and data collection; and in particular, child marriage, SRHR, and SGBV—suggest that *Healthcare*

¹⁵⁸ Erin C. Lentz, "Complicating Narratives of Women's Food and Nutrition Insecurity: Domestic Violence in Rural Bangladesh," *World Development* 104 (April 1, 2018): 271–80, <https://doi.org/10.1016/j.worlddev.2017.11.019>.

¹⁵⁹ C. Nadine Wathen, Barb MacQuarrie, and Jennifer MacGregor, "Can Work Be Safe, When Home Isn't?: Initial Findings of a Pan-Canadian Survey on Domestic Violence and the Workplace," Western Education (Centre for Research & Education on Violence Against Women and Children, Canadian Labour Congress, 2015); Jennifer C.D. MacGregor, C. Nadine Wathen, and Barbara J. MacQuarrie, "Domestic Violence in the Canadian Workplace: Are Coworkers Aware?," *Safety and Health at Work* 7, no. 3 (September 2016): 244–50, <https://doi.org/10.1016/j.shaw.2016.01.003>.

¹⁶⁰ Konstantinos Tsirigotis and Joanna Łuczak, "Resilience in Women Who Experience Domestic Violence," *Psychiatric Quarterly* 89, no. 1 (March 1, 2018): 201–11, <https://doi.org/10.1007/s11126-017-9529-4>.

¹⁶¹ Virginie Le Masson et al., "How Violence against Women and Girls Undermines Resilience to Climate Risks in Chad," *Disasters* 43, no. Suppl 3 (April 2019): S245–70, <https://doi.org/10.1111/disa.12343>.

is likely to play an important role in the *Human Security* of many, but especially women. In the words of Forsberg and Olsson, gender discrimination in *Healthcare* suggests low investments in women's education, empowerment, networks, and political representation, triggering lower societal stability overall, and possibly greater risks of national or international fragility as a result. A climate-responsive, gender transformative *Healthcare* system would take seriously the impacts that social reproduction and cultural/institutional inequalities have on women's health by addressing the norms underlying such disparities. Serious attention would also be paid to investments made to changing the attitudes, laws (customary and judicial), and institutional structures that support practices such as child marriage, lack of SRHR, and high rates of SGBV.

2.1.2.2. Healthcare and National/International Security

Looking at the *National/International Security* implications of GCS-Factor *Healthcare*, it's obvious that all four types of security risks may be impacted.¹⁶² In the *crime/violence/extremism* pathway, *Healthcare* crises may fuel an increase in a wide variety of malign activities, as criminals and organized crime groups find both obstacles and opportunities for their illicit activities (Linkage 2.1.2.J). One only has to look at the increased illegal activities perpetuated during the COVID-19 pandemic. While social distancing and travel restrictions had a dampening effect on some criminal activities in the early days, with police forces focused on pandemic-related activities, there were also

¹⁶² For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

opportunities for organized crime groups to scale up their activities.¹⁶³ A Global Initiative Against Transnational Organized Crime report describes the situation in Guinea-Bissau where drug production and trafficking saw an increase during the pandemic, along with attacks on journalists and opposition figures, and corruption within the judiciary. In South Africa, Nairobi, Switzerland, and other countries, cyber scammers became increasingly active. Street crime, trade in illegal wildlife products, and many other types of criminal activity have also increased.¹⁶⁴

Importantly, the health sector has seen a significant uptick in health-related fraudulent activity as smugglers steal and traffic in medical supplies, and scammers have peddled counterfeit medical devices and fake cures in 90 countries, with seizures of potentially dangerous pharmaceuticals worth \$14+ million in 2020 alone.¹⁶⁵ The health sector has also been victim to diversion of funds, misallocation of resources, bribes for preferential medical treatment, and rampant corruption around the world.¹⁶⁶ Though no research has been completed regarding gendered motivations, a whole range of motivations may drive people to be involved in criminal activity during a health crisis. It may be reasonable to surmise that women may be motivated by a desire to *increase survival*, especially if pregnancy health concerns or the health of children are an issue. Additionally, perhaps motivations related to *greater opportunities* will motivate women to engage in criminal activity, especially if healthcare costs increase. For men, *pull of networks* and *personal security* may be most likely. [Noting again, as discussed in section

¹⁶³ “Coronavirus: The Impact on Crime and Criminal Networks” (Global Initiative Against Transnational Organized Crime, March 2020), 4, <https://globalinitiative.net/analysis/crime-contagion-impact-covid-crime/>.

¹⁶⁴ “Coronavirus,” 6.

¹⁶⁵ “Coronavirus,” 7.

¹⁶⁶ “Coronavirus,” 7.

1.2.3.2, as crime rates increase following *Healthcare* crises, men may be more likely to be involved in violent crimes and in leadership roles, while women may be more involved in property-related crimes and low-ranking positions within crime organizations, however no research has been completed to connect gendered roles related to health-based criminal activity.]

Weakened state capacity due to an inability to handle a widespread *Healthcare* crisis may also lead to increases in *anti-state grievances* (Linkage 2.1.2.K). According to Campbell, “Loss of confidence in government’s ability to protect its citizens makes people vulnerable to extremists who promise near-term solutions, leading to civil unrest and political violence, refugee migrations into neighboring states, insurgencies and disruption of regional security.”¹⁶⁷ A data analysis of historical pandemic and political violence by Sedik and Xu shows social unrest increases at about 14 months following a pandemic’s start, and peaks around 24 months post-pandemic. Systems with lower growth, existing social unrest, and higher inequality experience the impact more intensely and may become locked in a vicious cycle.¹⁶⁸

In particular, erosion of public trust in the state may drive individuals or groups to take matters into their own hands, a trend that has been seen in the wake of the COVID-19 pandemic. The Armed Conflict Location & Event Data (ACLED) Project, which has tracked political violence before and during the pandemic, showed an initial decline in political violence and demonstrations (likely linked to pre-pandemic negotiations and

¹⁶⁷ James R. Campbell, “Human Health Threats and Implications for Regional Security in Southeast Asia,” in *Human Security*, ed. Benny Teh Cheng Guan (Netherlands: Dordrecht: Springer, 2011), 173–91, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7121934/>.

¹⁶⁸ Tahsin Saadi Sedik and Rui Xu, “A Vicious Cycle: How Pandemics Lead to Economic Despair and Social Unrest,” in *IMF Working Paper* (International Monetary Fund, 2020), 5, <https://www.imf.org/-/media/Files/Publications/WP/2020/English/wpica2020216-print-pdf.ashx>.

ceasefires in high-incidence countries like Syria and Afghanistan), though this trend reversed over the long term, with rates of political violence rising to their highest levels in 2020 shortly after the initial drop-off.¹⁶⁹ During the initial phases of the pandemic, while state leadership and institutions were distracted, some groups hostile to the state seized the opportunity to gain military advantage in the field or exploit state weaknesses, especially through propaganda and misinformation; meanwhile acts of state repression increased 30% globally.¹⁷⁰ Seeing this in the light of the gendered nature of political unrest, criticism of governments made on the basis of failure to protect public health might conceivably motivate protesters through the *avoid abuse* mechanism (likely women) and *exposure to violence/repression* mechanism (likely men), though no specific research on political unrest motivations related to *Healthcare* is readily available. [Noting that, as discussed in section 1.2.3.3, men are more likely to be involved in violent protests; women may be more involved in low-risk anti-state demonstrations, however more research is required to connect gendered protest participation trends related to *Healthcare*].

Healthcare crises also appear to trigger *grievances between societal groups* (Linkage 2.1.2.L). According to Peterson, epidemic disease outbreaks may lead to economic and political instability, resulting in heightened risks of conflicts between groups, especially in fragile regions.¹⁷¹ A study by Barrett and Chen confirms these

¹⁶⁹ Melissa Pavlik, “A Great and Sudden Change: The Global Political Violence Landscape Before and After the COVID-19 Pandemic,” ACLED: Bringing Clarity to Crisis, August 4, 2020, <https://acleddata.com/2020/08/04/a-great-and-sudden-change-the-global-political-violence-landscape-before-and-after-the-covid-19-pandemic/>.

¹⁷⁰ Martin Bricknell, Ramon PACHECO Pardo, and Christoph O Meyer, “How the COVID-19 Crisis Has Affected Security and Defence-Related Aspects of the EU” (European Parliament SEDE Committee, January 2021), 11, [https://www.europarl.europa.eu/RegData/etudes/IDAN/2021/653623/EXPO_IDA\(2021\)653623_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2021/653623/EXPO_IDA(2021)653623_EN.pdf).

¹⁷¹ Susan Peterson, “Epidemic Disease and National Security,” *Security Studies* 12, no. 2 (2002): 79.

findings, and suggests that in the long run, pandemics lead to an increase in civil unrest and violence due to scarring effects of epidemics, such as increased fears of the ‘other,’ backlash against certain groups, the negative effects of containment and mitigation efforts, and severe economic damage especially for the poor.¹⁷² ACLED has recorded an 11% increase in mob violence since the start of the COVID-19 pandemic, with 1,800 incidents in dozens of countries in the first 16 weeks following the declaration of a pandemic as people attempted to use non-state violence to correct perceived wrongs and punish those suspected of spreading the disease.¹⁷³ Notably, violence against civilians by communal militias increased 70%.¹⁷⁴ Additionally, mass movements of people continued in many regions, with some reports that migrants and refugees were being scapegoated as disease carriers.¹⁷⁵ Furthermore, pandemic-related economic challenges in many regions may lead to mass migrations, adding to local and international tensions. It is reasonable to posit that such activity may be motivated by *increase survival* (typically women) and *personal security* (typically men), though research on motivations is not available.

Interstate tensions may also prove problematic during health crises (Linkage 2.1.2.M). Peterson speaks of health crises such as pandemics as possible vectors for changing regional balances of power caused by heightened infection rates among military personnel that weaken military readiness.¹⁷⁶ Additionally, Mustasilta suggests that

¹⁷² Philip Barrett and Sophia Chen, “Social Repercussions of Pandemics,” in *IMF Working Paper* (International Monetary Fund, 2021), 4, <https://www.imf.org/-/media/Files/Publications/WP/2021/English/wpiea2021021-print-pdf.ashx>.

¹⁷³ Pavlik, “A Great and Sudden Change.”

¹⁷⁴ Pavlik, “A Great and Sudden Change.”

¹⁷⁵ Bricknell, Pardo, and Meyer, “How the COVID-19 Crisis Has Affected Security and Defence-Related Aspects of the EU,” 13.

¹⁷⁶ Peterson, “Epidemic Disease and National Security,” 77.

distraction of international bodies opens opportunities for conflicts to erupt or worsen.¹⁷⁷ These trends have been evident during the COVID-19 pandemic. For instance, the conflict in the Donbas between Ukraine and Russia had been moving forward prior to the pandemic, but border closures slowed people's movements and hindered international monitoring, while distractions permitted ceasefire violations.¹⁷⁸ Furthermore, the COVID-19 pandemic has also resulted in stalling or cessation of peace efforts in some regions. This is likely due to distractions within fragile systems that demand significant attention, and lack of money due to budget cuts to peacekeeping efforts.¹⁷⁹ Motivations for engaging in *interstate tensions* could conceivably be similar to those of *grievances between societal groups: increase survival* (typically women) and *personal security* (typically men), though here, too no research is available.

¹⁷⁷ Katariina Mustasilta, "The Effects of the COVID-19 Pandemic on Peace and Conflict," *IPI Global Observatory* (blog), October 23, 2020, <https://theglobalobservatory.org/2020/10/effects-of-covid-19-pandemic-on-peace-conflict/>.

¹⁷⁸ Katariina Mustasilta, "From Bad to Worse? The Impact(s) of Covid-19 on Conflict Dynamics," *European Union Institute Security Studies* 13, no. 6 (June 11, 2020): 5.

¹⁷⁹ Mustasilta, "From Bad to Worse? The Impact(s) of Covid-19 on Conflict Dynamics," 5; Cedric de Coning, "Examining the Longer-Term Effects of COVID-19 on UN Peacekeeping Operations," *IPI Global Observatory* (blog), May 13, 2020, <https://theglobalobservatory.org/2020/05/examining-longer-term-effects-covid-19-un-peacekeeping-operations/>; Mustasilta, "The Effects of the COVID-19 Pandemic on Peace and Conflict."

2.1.2.3. Summary of Gender-Climate-Security and Healthcare

A summary visualizing Gender-Climate-Security connections to *Healthcare* can be found in Figure 10. A list of Diagnostic Questions in Table 50 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

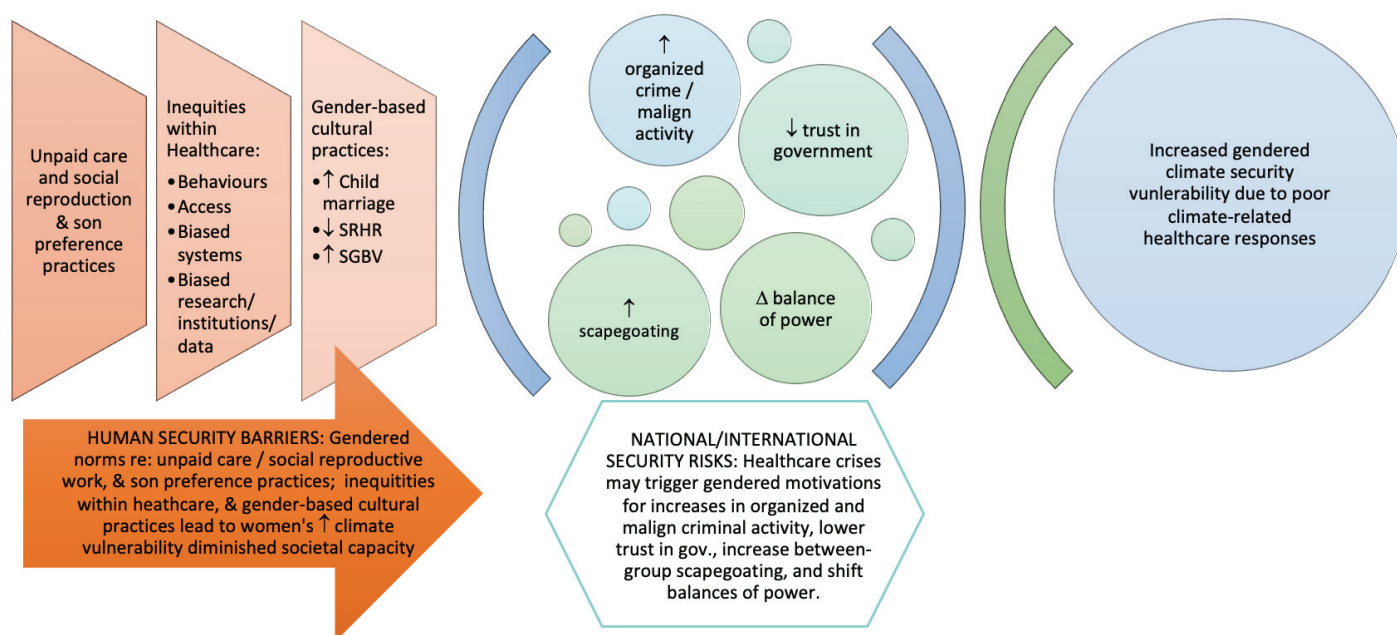


Figure 10. Gendered Climate Security Vulnerabilities in Healthcare.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Healthcare.

2.1.3. Water, Sanitation, and Hygiene (WASH)

Table 11. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor WASH.

<p>Dominant Approach: Measures the percentage of a population that has access to basic sanitation services (flush/pour flush to piped sewer systems, septic tanks, pit latrines, composting toilets) that they do not share with other households, as well as basic drinking water services (from improved water sources such as piped water, borehole or tube well, protected springs, protected dug wells, or packaged water) that requires no more than 30 minutes round trip for collection.¹⁸⁰</p>
<p>FPEcon/FPEcol Approach: In conventional development and environmental sustainability theory, water, sanitation, and hygiene (WASH) services are viewed as commodities to which all humans should have equal access. While FPEcon and FPEcol scholars would agree that equal access is a requirement, scholars in these theoretical traditions suggest that human relationships to water are far more complex and nuanced, and often highly gendered and unequal. For instance, feminist scholar Saltana argues that components of nature such as water are important factors in re/producing gendered social relations in terms of whether or not people’s time/labour/work are valued; decisions made about how far/from where to get water, how often, how much, and how to use it; and whether people feel empowered or powerless to change their access to safe water.¹⁸¹</p> <p>In conventional market-focused conceptions of <i>WASH</i>, water should be commoditized as much as possible to encourage conservation and prevent pollution, and decentralized structures should be employed in its management, in which special roles are reserved for women in managing and conserving water.¹⁸² FPEcols Cleaver and Elson, however, argue that dealing with water as an economic resource ignores water’s role in health and social wellbeing and therefore doesn’t calculate the economic benefits it offers. Furthermore, privatizing water for the purposes of selling it takes a natural resource away from those who often cannot pay for it.¹⁸³ Finally, Green and Baden suggest that rather than empowering women, a market-driven approach to water may trap women in</p>

¹⁸⁰ “People Using Safely Managed Sanitation Services (% of Population),” The World Bank, accessed May 18, 2022, <https://data.worldbank.org/indicator/SH.STA.SMSS.ZS>; “People Using at Least Basic Drinking Water Services (% of Population),” The World Bank, accessed May 18, 2022, <https://data.worldbank.org/indicator/SH.H2O.BASW.ZS>.

¹⁸¹ Farhana Sultana, “Fluid Lives: Subjectivities, Gender and Water in Rural Bangladesh,” *Gender, Place & Culture* 16, no. 4 (August 2009): 436, <https://doi.org/10.1080/09663690903003942>.

¹⁸² Cecile Jackson, “Gender, Irrigation, and Environment: Arguing for Agency,” *Agriculture and Human Values* 15, no. 4 (December 1, 1998): 315, <https://doi.org/10.1023/A:1007528817346>.

¹⁸³ F. Cleaver and D. Elson, “Women and Water Resources: Continued Marginalisation and New Policies,” 1995, <https://vtechworks.lib.vt.edu/handle/10919/67390>.

domestic roles as household water managers, and that anti-pollution incentives may add to women's unpaid labour workloads.¹⁸⁴

Jackson recommends avoidance of two potential pitfalls when discussing water and gender. First, “an overemphasis on the separation of genders, rather than the integration and interdependence of gender relations,” looking instead at dynamic and complex gender identities, and shared/divided interests of water. Second, “an excessive reliance on materialist analysis, in particular a reduction of “resources” to mean only physical assets,” in favour of considering culture as well as land and labour.¹⁸⁵

Using a feminist political ecology approach provides a way of asking nuanced questions to understand the gender-water nexus and overcome some of the pitfalls Jackson mentions. Specifically, FPEcol problematizes gendered water relations by probing whether women are negatively impacted by large-scale water projects that cause environmental degradation; whether or not divisions of labour between women and men function well; how much time and effort water collection requires; whether a particular community's gender differences in relation to water are important; whether the commodification of water impacts women and men differently; and whether women and men have specialist knowledge about how water is accessed, controlled, or valued.¹⁸⁶ The discussion that follows will attempt to examine many of these gendered elements of *WASH* and how they may or may not add or subtract from individual and community and individual *Coping Capacity*.

Brief comparison of dominant and feminist definitions of WASH.

¹⁸⁴ Cathy Green and Sally Baden, “Integrated Water Resources: A Gender Perspective,” *IDS Bulletin* 26, no. 1 (January 1, 1995): 92–100, <https://doi.org/10.1111/j.1759-5436.1995.mp26001013.x>.

¹⁸⁵ Jackson, “Gender, Irrigation, and Environment,” 315.

¹⁸⁶ Jackson, “Gender, Irrigation, and Environment,” 315.

Table 12. Short Overview of the WASH Gender-Climate-Security Linkages.

Human Security¹⁸⁷	Gender Equality-Security Mechanisms
Linkage 2.1.3.A. Due to gendered norms, women/girls are often tasked with WASH-related household duties (cooking, laundry, cleaning, and caring for sick family) → climate-caused water shortages may increase time/effort required to complete WASH-related tasks → time spent on WASH tasks reduces time available to women/girls for economic/education activities → reinforces household/socioeconomic gendered inequalities	<i>Societal capacity</i>
Linkage 2.1.3.B. Climate-related water shortages may complicate WASH-related tasks → women/girls may face increased structural, psychological, physical, and SGBV risks, especially in water-stressed rural regions, urban slums, and displaced-persons camps → SGBV intensifies existing gender-based inequalities	<i>Societal capacity</i>
Linkage 2.1.3.C. Climate-caused WASH-related task complications may increase risks of physical injury to women/girls → women/girls may experience higher rates of neck pain, spinal injuries, spontaneous abortion, uterine prolapse, and increase caloric expenditures → bodily depletion further reinforces gender inequalities	<i>Societal capacity</i>
Linkage 2.1.3.D. Lacking adequate WASH facilities may challenge women's ability to address unique biological needs such as urination, defecation, menstruation, and pregnancy → may reinforce ideas that bodily functions are dirty/impure → may prevent women from seeking information/healthcare support and/or may limit women's ability to participate in educational/economic spaces and reinforce gender inequities	<i>Societal capacity</i>
Linkage 2.1.3.E. Climate change makes WASH-related tasks more difficult and increases stress related to SGBV and shame → women experience higher levels of distress and mental health challenges → women lack empowerment and	<i>Societal capacity</i>

¹⁸⁷ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security¹⁸⁷		Gender Equality-Security Mechanisms
report lower levels of happiness		
Linkage 2.1.3.F. Governments may fail to address care economy-related infrastructure investments (pipe water systems, wells, sewer systems) due to climate-stressed budgets → further reinforces structural gender power imbalances with all of the effects previously noted		<i>Societal capacity</i>
National/International Security¹⁸⁸	Pathway	Motivational Mechanisms
Linkage 2.1.3.G. Climate change is expected to cause widespread water shortages → may fuel elite- or criminal/rebel groups capture/securitization of water provisioning → hypermasculine, militant, and terrorist approaches may be used to instil fear of violence and amplify feelings of water deprivation	Crime/violence/extremism	Men more likely to be involved in violent crime // <i>Avoid abuse[§]</i> (typically women) and <i>pull of networks[§]</i> or <i>exposure to violence/repression[§]</i> (typically men) motivations
Linkage 2.1.3.H. Climate change is expected to cause widespread water shortages → hypermasculine, militant, and terrorist approaches may be used to instil fear of water-related violence and amplify a sense of water deprivation → may deteriorate community's mental health → may feed into negative feelings that fuel violence	Crime/violence/extremism	<i>Increase survival[§]</i> (typically women) and <i>personal security[§]</i> (typically men)
Linkage 2.1.3.I. Climate change is expected to cause widespread water shortages → both women and men may protest, sometimes violently (some women defy norms that restrict them to the home) → protests may	Anti-state grievances	<i>Avoid abuse[§]</i> and <i>increase survival[§]</i> (typically women) and <i>exposure to violence/repression[§]</i>

¹⁸⁸ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security ¹⁸⁸	Pathway	Motivational Mechanisms
result in violent clashes with police		and <i>personal security</i> [§] (typically men)
Linkage 2.1.3.J. Climate-caused water shortages may prompt governments to privatize water supplies → women (and men, who are more often in leadership roles) may organize demonstrations against resulting restrictions, frustrations, and injustices → demonstrations may result in violent clashes with police	Anti-state grievances	Women defy gender norms to be involved in protests, sometimes violent // <i>Avoid abuse</i> [§] (typically women) and possible cross-over into <i>exposure to violence/repression</i> [§] (typically men but may also be expressed by women) as well as <i>revenge</i> [§] (typically men)
Linkage 2.1.3.K. Climate change may increase water shortages → may amplify tensions between existing rival groups or create tensions with new intrastate competitors (especially when combined with socioeconomic factors)	Grievances between societal groups	[Requires research] <i>Increase survival</i> (typically women) [∅] and <i>pull of networks</i> or <i>personal security</i> (typically men) [∅]
Linkage 2.1.3.L. Climate change may increase water shortages → may amplify tensions between existing rival groups or create tensions with new intrastate competitors → rape may be used as a weapon of war to shame rivals into acquiescing to demands	Grievances between societal groups	<i>Avoid abuse</i> [§] (typically women) and <i>revenge</i> [§] (typically men)
Linkage 2.1.3.M. Climate change may increase water shortages → may intensify existing or trigger new interstate tensions → should hydrodiplomacy fail or power balances become skewed, water wars may result	Interstate tensions	[Requires research] NA [∅]

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with a §; those with no research with ∅. For a full explanation of each Linkage, see sections 2.1.3.1 and 2.1.3.2.

2.1.3.1. WASH and Human Security

Within the larger *Gendered Climate-Security Lifecycle*, GCS-Factor *WASH* may be one of the most studied in terms of climate change's impact, the role of *WASH* in *Human Security* and *National/International Security*, and the gendered nature of *WASH* challenges. In fact, an Intergovernmental Panel on Climate Change (IPCC) report on climate change and water noted, "water and its availability and quality will be the main pressures on, and issues for, societies and the environment under climate change."¹⁸⁹ Access to water and *WASH* resources are particularly key to *Human Security* because of the ways in which they are tied to food security and socioeconomic development, and because of the gendered nature of such access. From an FPEcol perspective, socioeconomic disadvantages due to lack of affordable and direct access to natural resources like water generally decrease *Human Security*, making individuals, families, and communities more vulnerable to climate security risks. With this perspective in mind, most of the following discussion will focus on the *societal capacity Gender Equality-Security Mechanism*.¹⁹⁰ In particular six *Gender-Climate-Security Linkages* for how climate change may intensify *WASH*-related gender inequalities and reduce women's climate *Coping Capacity* will be discussed: (1) increasing the time required to complete *WASH*-related tasks; (2) increasing threats of SGBV in carrying out *WASH*-related tasks; (3) increasing physical injury due to more difficult *WASH*-related tasks; (4) amplifying modesty/privacy concerns that may hold women back from seeking medical help or

¹⁸⁹ Bryson Bates, Zbigniew W. Kundzewicz, and Shaohong Wu, *Climate Change and Water*, Technical Paper 6 (Intergovernmental Panel on Climate Change Secretariat, 2008), 7.

¹⁹⁰ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

engaging in the economic/education opportunities; (5) increasing rates of mental health distress; (6) limiting government investments in care economy *WASH* infrastructure, thereby reinforcing structural power imbalances.

Both slow-onset climate breakdown and climate-caused natural disasters are already damaging *WASH* facilities. In particular, climate change is expected to increase intensity of rainfall in some regions, causing flood damage and contaminating water supplies; increased rainfall variability, resulting in frequent droughts that impact seasonal water supplies and could result in water contamination; and causing longer term declines in rainfall and run-off, leading to reductions in river flows and groundwater supplies, and impacting sanitation systems.¹⁹¹ One recent example is cyclone Amphan in Bangladesh, following which Rafa et al. found that water sources became contaminated and toilets were destroyed, resulting in lack of safe water, open defecation, and outbreaks of skin conditions and diarrhea.¹⁹² Kohlitz et al. studied the intersection of climate and *WASH* by examining three theoretical approaches to the problem: outcome vulnerability, contextual vulnerability, and resilience (summarized briefly in Table 13).¹⁹³

¹⁹¹ Naomi Oates et al., “Adaptation to Climate Change in Water, Sanitation and Hygiene” (Water Policy Programme, Overseas Development Institute, January 2014), 4–5, https://assets.publishing.service.gov.uk/media/57a089b9ed915d622c000381/61463-ODI_Adaptation_to_Climate_Change_in_WASH_Final.pdf.

¹⁹² Nazifa Rafa, Abu Jubayer, and Sayed Mohammad Nazim Uddin, “Impact of Cyclone Amphan on the Water, Sanitation, Hygiene, and Health (WASH2) Facilities of Coastal Bangladesh,” *Journal of Water, Sanitation and Hygiene for Development* 11, no. 2 (February 4, 2021): 304–13, <https://doi.org/10.2166/washdev.2021.170>.

¹⁹³ Jeremy Paul Kohlitz, Joanne Chong, and Juliet Willetts, “Climate Change Vulnerability and Resilience of Water, Sanitation, and Hygiene Services: A Theoretical Perspective,” *Journal of Water, Sanitation and Hygiene for Development* 7, no. 2 (March 13, 2017): 181–95, <https://doi.org/10.2166/washdev.2017.134>.

Table 13. Three Theoretical Approaches to Understanding Climate-WASH Interactions.

Outcome vulnerability	Contextual vulnerability	Resilience
Focuses on climate impacts on society and nature as a function of a system's exposure and sensitivity to future hazards.	Focuses on non-climatic drivers of climate susceptibility that result in an inability to cope with external pressures and changes.	Focuses on the interaction of social-ecological systems as understood as the amount of change or disturbance a system can absorb without shifting to a new state with different structural and functional properties.
Specific climate-impacted WASH infrastructure systems impacted include: <ul style="list-style-type: none"> • Wells and latrines • Spring-fed water systems • Groundwater supplies • Small-scale sand dams • Small-scale water supplies • Mountain spring-fed water systems • Rural groundwater supplies 	Specific points of susceptibility within WASH systems include: <ul style="list-style-type: none"> • How people draw on religious and cultural values to secure water • Power relations that result in unequal access to land or resources • Social and economic factors 	Specific approaches to understanding WASH resilience include: <ul style="list-style-type: none"> • Adaptive co-management, focused on analyzing complex, cross-scale interconnections between factors and processes affecting water management • Integrated water resources management, focused on how water systems interact with one another
Solutions include: <ul style="list-style-type: none"> • Improve utility capacity • Repair and modify water infrastructure • Finance systems for rural communities • Climate-proof WASH infrastructure 	Solutions include: <ul style="list-style-type: none"> • Addressing power structures within influential organizations • Improving feelings of self-efficacy • Empowering individuals to overcome local barriers to adaptive action • Alleviating poverty 	Solutions include: <ul style="list-style-type: none"> • Continual monitoring and information gathering to support learning and adaptation • Diversification of water supplies to spread risk • Increased redundancy through storage and multiple water sources • Deeper wells/boreholes to prevent depletion • Decentralizing water infrastructure to maximize use of different skillsets

Climate-driven WASH risks and approaches to addressing them as outlined by Kohlitz et al., summarized by this author.¹⁹⁴

¹⁹⁴ Kohlitz, Chong, and Willetts, "Climate Change Vulnerability and Resilience of Water, Sanitation, and Hygiene Services."

While all three of the above theoretical perspectives are important for conceptualizing how climate change is likely to impact *WASH* systems, given the focus on gender equity within the proposed framework of this study, the six *Gender-Climate-Security Linkages* for how climate change may intensify *WASH*-related gender inequalities explored in the following discussion will fall into the “contextual vulnerability” approach, however the “resilience” approach is likely to offer the most in terms of gender transformative approaches to addressing gender inequalities in *WASH* systems.

First, due to women’s and girls’ culturally prescribed roles in the household related to cooking, laundry, cleaning, and caring for children and sick family members, the collection and management of household water resources is an important factor in their wellbeing. Numerous studies have shown that lack of access to affordable, local *WASH* resources often results in women and children (especially girls) spending significant amounts of time fetching water and carrying out cleaning tasks—responsibilities which will require even more time as climate change accelerates and water sources become more scarce.¹⁹⁵ The time required for water collection and management reduces time available to women and girls for undertaking economic

¹⁹⁵ Nyambod Emmanuel M. and Nazmul Huq, “Integrated Water Resources Management and Poverty Eradication –Policy Analysis of Bangladesh and Cameroon,” *Journal of Water Resource and Protection* 2, no. 3 (March 2010): 191–98, <https://doi.org/10.4236/jwarp.2010.23021>; Susan B. Sorenson, Christiaan Morssink, and Paola Abril Campos, “Safe Access to Safe Water in Low Income Countries: Water Fetching in Current Times,” *Social Science & Medicine* 72, no. 9 (May 2011): 1522–26, <https://doi.org/10.1016/j.socscimed.2011.03.010>; Vica Marie Jelena Tomberge et al., “The Physical Burden of Water Carrying and Women’s Psychosocial Well-Being: Evidence from Rural Nepal,” *International Journal of Environmental Research and Public Health* 18, no. 15 (July 26, 2021): 7908, <https://doi.org/10.3390/ijerph18157908>.

activities and education, and may reinforce gender norms about the value of women's time and abilities, as well as their lower household status (Linkage 2.1.3.A).¹⁹⁶

Second, in communities where *WASH* facilities are lacking, ranging from water-stressed rural regions to urban slums to displaced-persons camps, women may become more vulnerable to SGBV. Nunbogu and Elliott's research suggests there are four types of *WASH*-related gender-based violence: structural, psychological, physical, and sexual.¹⁹⁷

1. Structural: In communities without discrete, gender-specific toilets and washing facilities, women frequently report harassment and violence when attempting to urinate, defecate, or wash, and often wait hours to find a private location rather than risk attack.¹⁹⁸
2. Psychological: Intra-household conflicts may also develop if there are disagreements between water use for livestock and household needs, in some cases leading to increased mental strain and higher risks of SGBV.¹⁹⁹ Mental distress related to *WASH* may also arise due to harassment by community leaders

¹⁹⁶ Julie Fisher, Sue Cavill, and Brian Reed, "Mainstreaming Gender in the WASH Sector: Dilution or Distillation?," *Gender & Development* 25, no. 2 (May 4, 2017): 185–204, <https://doi.org/10.1080/13552074.2017.1331541>.

¹⁹⁷ Abraham Marshall Nunbogu and Susan J. Elliott, "Characterizing Gender-Based Violence in the Context of Water, Sanitation, and Hygiene: A Scoping Review of Evidence in Low- and Middle-Income Countries," *Water Security* 15 (April 1, 2022), <https://doi.org/10.1016/j.wasec.2022.100113>.

¹⁹⁸ Marni Sommer et al., "Violence, Gender and WASH: Spurring on a , under-Documented and Sensitive Topic," *Environment and Urbanization* 27, no. 1 (April 1, 2015): 105–16, <https://doi.org/10.1177/0956247814564528>; Goleen Samari, "Syrian Refugee Women's Health in Lebanon, Turkey, and Jordan and Recommendations for Improved Practice," *World Medical & Health Policy* 9, no. 2 (June 2017): 255–74, <https://doi.org/10.1002/wmh3.231>.

¹⁹⁹ Sarah Yerian et al., "The Role of Women in Water Management and Conflict Resolution in Marsabit, Kenya," *Environmental Management* 54, no. 6 (December 1, 2014): 1320–30, <https://doi.org/10.1007/s00267-014-0356-1>.

for practices of open defecation where sufficient toilet facilities are lacking.²⁰⁰

(Notably, some men and boys also face violence in similar situations, and often avoid reporting incidences due to masculine stigmas.²⁰¹).

3. Physical: Women who migrate to internally-displaced people (IDP) camps (possibly due to climate change) may skip meals in order to avoid the challenges of finding safe and hygienic toilets.²⁰²
4. Sexual: In the act of fetching water, girls and women may need to travel increasing distances, putting them at greater risk of SGBV.²⁰³

As discussed in section 2.1.2.1, all forms of SGBV may be used to marginalize women and reinforce unequal power structures, increasing gendered human insecurity and reducing climate *Coping Capacity* (Linkage 2.1.3.B).

SGBV isn't the only physical threat to the health of women. In a third category of gendered disadvantage related to *WASH*, heavy loads of water may cause a variety of injuries in the bodies of the girls and women who collect and transport water by hand, adding to their bodily depletion. For instance, research by numerous scholars suggests that women tasked with carrying water experience neck pain, spinal injuries, spontaneous

²⁰⁰ Siddhivinayak Hirve et al., "Psychosocial Stress Associated with Sanitation Practices: Experiences of Women in a Rural Community in India," *Journal of Water, Sanitation and Hygiene for Development* 5, no. 1 (November 18, 2014): 115–26, <https://doi.org/10.2166/washdev.2014.110>.

²⁰¹ Edward G. J. Stevenson et al., "Water Insecurity in 3 Dimensions: An Anthropological Perspective on Water and Women's Psychosocial Distress in Ethiopia," *Social Science & Medicine* 75, no. 2 (July 1, 2012): 392–400, <https://doi.org/10.1016/j.socscimed.2012.03.022>; Hirve et al., "Psychosocial Stress Associated with Sanitation Practices."

²⁰² Reetu Sogani, "Gender Approaches in Climate Compatible Development: Lessons from India" (Climate and Development Knowledge Network, 2016), 22, <https://www.preventionweb.net/publication/gender-approaches-climate-compatible-development-lessons-india>.

²⁰³ Jennifer A. Thompson, Fidelis Folifac, and Susan J. Gaskin, "Fetching Water in the Unholy Hours of the Night: The Impacts of a Water Crisis on Girls' Sexual Health in Semi-Urban Cameroon," *Girlhood Studies* 4, no. 2 (December 1, 2011): 111–29, <https://doi.org/10.3167/ghs.2011.040208>; Sorenson, Morssink, and Campos, "Safe Access to Safe Water in Low Income Countries," May 2011.

abortion, uterine prolapse, and increase caloric expenditures.²⁰⁴ As will be discussed in depth in a section on *Life Expectancy*, failure to include the bodily depletion that this kind of work may generate means ignoring the subsidy many women's bodies make to their households and the economy more generally (Linkage 2.1.3.C).

Fourth, women and girls face unique biological challenges with the physical acts related to *WASH* systems such as urination, defecation, menstruation, and pregnancy. For instance, a systematic review of research on menstruation by Hennegan et al. shows that in many cultures, stigmas regarding menses are common, and include restrictive gender norms and conceptualizations of menstruation as 'dirty' or 'impure' that stress requirements that women maintain modesty norms, resulting in inhibition to speak about and seek information on personal care.²⁰⁵ When *WASH* systems are insufficient, such as in many schools worldwide, these stigmas prevent women from partaking in a full educational experience and ultimately hold them back in terms of personal and economic achievements.²⁰⁶ Sufficient *WASH* facilities are also crucial to maternal and newborn health, yet similar restrictions on access to water or stigmas about pregnancy and delivery may put women's and babies' lives at risk.²⁰⁷ These stigmas often reinforce gendered

²⁰⁴ Georgia L Kayser et al., "Water, Sanitation and Hygiene: Measuring Gender Equality and Empowerment," *Bulletin of the World Health Organization* 97, no. 6 (June 1, 2019): 438–40, <https://doi.org/10.2471/BLT.18.223305>; Jo-Anne Lee Geere et al., "Is Water Carriage Associated with the Water Carrier's Health? A Systematic Review of Quantitative and Qualitative Evidence," *BMJ Global Health* 3, no. 3 (2018), <https://doi.org/10.1136/bmjgh-2018-000764>; Damian Hoy et al., "Low Back Pain in Rural Tibet," *The Lancet* 361, no. 9353 (January 18, 2003): 225–26, [https://doi.org/10.1016/S0140-6736\(03\)12254-4](https://doi.org/10.1016/S0140-6736(03)12254-4); Tomberge et al., "The Physical Burden of Water Carrying and Women's Psychosocial Well-Being," July 26, 2021.

²⁰⁵ Julie Hennegan et al., "Women's and Girls' Experiences of Menstruation in Low- and Middle-Income Countries: A Systematic Review and Qualitative Metasynthesis," ed. Jenny E. Myers, *PLOS Medicine* 16, no. 5 (May 16, 2019), <https://doi.org/10.1371/journal.pmed.1002803>.

²⁰⁶ Bernadette P Resurrección et al., "Gender-Transformative Climate Change Adaptation: Advancing Social Equity" (Stockholm Environment Institute, 2019), 21, <https://gca.org/wp-content/uploads/2020/12/GenderTransformativeClimateChangeAdaptation.pdf>.

²⁰⁷ Yael Velleman et al., "From Joint Thinking to Joint Action: A Call to Action on Improving Water, Sanitation, and Hygiene for Maternal and Newborn Health," *PLOS Medicine* 11, no. 12 (December 12,

power imbalances by fueling feelings of shame that may impinge on a woman's freedom to leave the house, and consequently ability to attend school or work, and may inhibit a woman's feelings of empowerment and confidence.²⁰⁸ In communities facing *WASH* constraints due to climate change, the effects of such gender norms are likely to be even more profound (Linkage 2.1.3.D).

Fifth, women and girls often experience high mental distress levels and increased SGBV incidents when the management of *WASH* tasks is not fulfilled according to gendered expectations due to water shortages (which may be caused by climate change).²⁰⁹ For instance, Karim et al., found that, although a groundwater development project facilitated water provision, seasonal water shortages made it difficult for women to fulfil their household water-related obligations, often leading to male partners using violence against women as punishment.²¹⁰ Furthermore, Hadley and Wutich show that the mental distress caused by water insecurity is particularly acute for women who normally access piped water (though this same effect was not present in women who rely on natural seasonal water sources), which may stem from the gendered distribution of responsibilities for household water procurement and management.²¹¹

Sixth, in addition to the household and community-level gender norms already discussed, government-level investment in the care economy may either reinforce gender

2014), <https://doi.org/10.1371/journal.pmed.1001771>; Bethany A. Caruso et al., "Understanding and Defining Sanitation Insecurity: Women's Gendered Experiences of Urination, Defecation and Menstruation in Rural Odisha, India," *BMJ Global Health* 2, no. 4 (October 1, 2017): e000414, <https://doi.org/10.1136/bmjgh-2017-000414>.

²⁰⁸ Hennegan et al., "Women's and Girls' Experiences of Menstruation in Low- and Middle-Income Countries."

²⁰⁹ Stevenson et al., "Water Insecurity in 3 Dimensions."

²¹⁰ K. M. Rabiul Karim et al., "Water Development Projects and Marital Violence: Experiences from Rural Bangladesh," *Health Care for Women International* 33, no. 3 (2012): 200–216, <https://doi.org/10.1080/07399332.2011.603861>.

²¹¹ Craig Hadley and Amber Wutich, "Experience-Based Measures of Food and Water Security: Biocultural Approaches to Grounded Measures of Insecurity," *Human Organization* 68, no. 4 (2009): 451–60, <https://doi.org/10.17730/humo.68.4.932w421317680w5x>.

inequalities, or enact gender transformative changes that demonstrate a value for women's time and labour, particularly related to *WASH* activities. Care-related infrastructure investments, such as piped water systems, wells, and sewer systems, are frequently lacking in government budgets due to an emphasis on infrastructure projects that benefit masculine work.²¹² Lack of *WASH* infrastructure has been shown to increase rural poverty, particularly of women who are often locked into unpaid work that takes away from more productive activities.²¹³ As climate breakdown intensifies, government budgets for the care economy are likely to shrink, compounding the gender inequalities such systems support.

Viewed as a whole, these six ways in which *WASH*, gender, and climate change intersect (time required for *WASH*-related tasks; SGBV threats related to *WASH*-related tasks; physical injury due to *WASH*-related tasks; amplifying *WASH*-based modesty/privacy concerns; mental health distress; and reinforcing structural power imbalances through lack of government investment in care economy *WASH* infrastructure) are likely to decrease women's *Coping Capacity*. Applying Forsberg and Olsson's model, these six barriers to women's *Human Security* may limit women's access to education and political representation, and may hinder women's abilities to engage in networking or empowerment programs. Lowering women's societal capacity in this way will have a deleterious impact on community strength, and may contribute to increased risks of *National/International Security*.

Investments in gender-transformative policies, on the other hand, would meet women's *WASH* needs while also addressing the underlying gender inequalities within

²¹² Lekha S. Chakraborty, "Deficient Public Infrastructure and Private Costs: Evidence for the Water Sector," *Economic and Political Weekly* 43, no. 31 (2008): 69.

²¹³ Chakraborty, "Deficient Public Infrastructure and Private Costs," 69.

the realm of water, sanitation, and hygiene. MacArthur et al. frame the challenge this way:

There is a growing appeal to move beyond *instrumental* motives, towards a practice that supports *inherent* needs, while aiming to transform the *integral* roles of women and girls by embracing a transformative *ideological* imperative. ... gender-transformative thinking asserts that research and practice can and should ‘contribute to change in gender relations in wider society.’ Such research explores transformative *concepts* such as structures, agency and relations; values a diversity of *voices*; and utilises cross-disciplinary, participatory, and change-oriented *approaches*.²¹⁴

One way to address these inequities is to make use of the ‘resilience’ approaches already mentioned in Table 13. Applying Kabeer’s agency-resources-achievement empowerment framework to the issues of gender and *WASH*, as Dery et al. have done, we see that when women have equal access to *WASH* systems and resources, and are free to make purposeful choices in finding solutions to their unique *WASH* challenges, they are able to obtain *WASH* achievement, and therefore empowerment. This is evidenced through, “improved access to safe drinking water and sanitation, reduction in water-related diseases, healthcare savings, adequate time for engaging in economic activities for income, etc.”²¹⁵ Oxfam estimates that in Tanzania alone, investment in water infrastructure improvements would save women 1,128 million hours of work annually (Linkage 2.1.3.F).²¹⁶

²¹⁴ Jess MacArthur, Naomi Carrard, and Juliet Willetts, “WASH and Gender: A Critical Review of the Literature and Implications for Gender-Transformative WASH Research,” *Journal of Water, Sanitation and Hygiene for Development* 10, no. 4 (September 16, 2020): 818–27, <https://doi.org/10.2166/washdev.2020.232>.

²¹⁵ Florence Dery et al., “Understanding Empowerment in Water, Sanitation, and Hygiene (WASH): A Scoping Review,” *Journal of Water, Sanitation and Hygiene for Development* 10, no. 1 (December 3, 2019): 5–15, <https://doi.org/10.2166/washdev.2019.077>.

²¹⁶ Ruth Oloo, “Addressing Unpaid Care and Domestic Work for a Gender-Equal and Inclusive Kenya” (Oxfam International, 2021), 3, <https://oxfamlibrary.openrepository.com/bitstream/handle/10546/621179/bn-we-care-ucdw-kenya-130421-en.pdf?sequence=1>.

Additionally, addressing *WASH* needs of women in these basic areas of life tends to increase feelings of dignity and confidence.²¹⁷ Looking at the psychological aspects of *WASH* constraints, Hirve et al. and Stevenson et al. show women experience an increase in overall sense of empowerment and happiness when *WASH* stress is alleviated, and find that women may even use their freed-up time for personal care, leading to higher levels of wellbeing, all of which are essential elements of *Coping Capacity* in response to future climate breakdown (Linkage 2.1.3.E).²¹⁸

2.1.3.2. WASH and National/International Security

As a necessary component of life, it should come as no surprise that water scarcity may be one of the most animating forces behind climate-fueled *crime/violence/extremism, anti-state grievances, tensions between groups, and interstate tensions*.²¹⁹ FPEcol scholar Sultana explains why struggles over life-sustaining resources like water excite emotional responses from people:

Such a focus fleshes out the complexities, entanglements and messy relations that constitute political ecologies of resources management, where practices and processes are negotiated through constructions of gender, embodiments, and emotions. Abstractions of ‘resource struggles’ and ‘resource conflicts’ are thereby grounded in embodied emotional geographies of places, peoples, and resources, enabling us to better understand the ways resources and emotions come to matter in everyday survival struggles. ... In other words, we are better able to conceptualize

²¹⁷ Stevenson et al., “Water Insecurity in 3 Dimensions”; Hirve et al., “Psychosocial Stress Associated with Sanitation Practices.”

²¹⁸ Stevenson et al., “Water Insecurity in 3 Dimensions”; Hirve et al., “Psychosocial Stress Associated with Sanitation Practices.”

²¹⁹ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

and explain how and why people access, use, and struggle over resources the ways they do.²²⁰

It is beyond the scope of this study to provide a comprehensive summary of the literature on these subjects, but the ensuing discussion will offer a review of the gender-related research.

There are several pathways by which shortages of water may lead to increases in *crime/violence/extremism*. In a study of water wars in Mumbai, India, Graham et al. discuss criminal theft of water that threatens public health, as well as the complex overlaps between organized criminal groups and municipal officials in providing illegal piped water supplies and water tanker deliveries (Linkage 2.1.3.G).²²¹ A study of water provisioning and the securitizing of water in Karachi, Pakistan by Anwar et al. demonstrates several interesting gender dynamics related to criminal behaviour and political unrest.²²² For instance, in writing of water mafias and (sometimes violent) political parties that control water resources, they note the masculinization of water provisioning:

In the form of union councillors and valve men, local leaders, middlemen or strongmen (note the gender dynamic), these figures play an important role in the financing of new water supply schemes and timing water deliveries through private tankers. ... a patriarchal stereotype of the militant- or terrorist-controlled water supply is wielded with the aim of upholding statist national security concerns that undermine women's and men's daily security in water provisioning.²²³

²²⁰ Farhana Sultana, "Suffering for Water, Suffering from Water: Emotional Geographies of Resource Access, Control and Conflict," *Geoforum*, Themed Issue: New Feminist Political Ecologies, 42, no. 2 (March 1, 2011): 163–72, <https://doi.org/10.1016/j.geoforum.2010.12.002>.

²²¹ Stephen Graham, Renu Desai, and Colin McFarlane, "Water Wars in Mumbai," *Public Culture* 25, no. 1 (2013): 121,125, <https://doi.org/10.1215/08992363-1890486>.

²²² Nausheen H. Anwar, Amiera Sawas, and Daanish Mustafa, "'Without Water, There Is No Life': Negotiating Everyday Risks and Gendered Insecurities in Karachi's Informal Settlements," *Urban Studies* 57, no. 6 (2019): 1320–37.

²²³ Anwar, Sawas, and Mustafa, "'Without Water, There Is No Life.'"

Anwar and colleagues go on to say that the response of the state is often to frame water scarcity issues using national security logic by speaking of breaking the water mafia (who they refer to as militants). This research suggests that, should such repression of water access trigger crime and violence, women may be motivated to engage because of a desire to *avoid abuse* by water mafias or the government, while men may be motivated by *pull of networks*, or *exposure to violence/repression*, though further research is required to confirm this linkage.

Anti-state grievances over water shortages have also become more frequent in many states. Escalation of the securitization of water has had the effect of exacerbating uncertainty felt by residents of affected regions by intensifying their exclusion from water sources.²²⁴ Fear of violence and lack of water is likely to intensify emotional and psychological distress already caused by water scarcity (Linkage 2.1.3.H). Research by Vuong et al. has shown that household limits of <50 litres of water per person per day were associated with lower physical and mental health, and that mental health declined even further when this was combined with food insecurity.²²⁵ Consequently, mental health issues may amplify community instability and further increase the likelihood of violence. Given the strong links between climate-induced water stress and the emotional strain caused by threats to human wellbeing, it may be reasonable to posit that women could be motivated to join in *crime/violence/extremism* out of a desire to *increase survival*, while men may be more likely to engage in such activity due to motivations around *personal security*.

²²⁴ Anwar, Sawas, and Mustafa, “Without Water, There Is No Life.”

²²⁵ Thuy Ngoc Vuong et al., “Household Water and Food Insecurity Negatively Impacts Self-Reported Physical and Mental Health in the Vietnamese Mekong Delta,” ed. Alison Parker, *PloS One* 17, no. 5 (2022), <https://doi.org/10.1371/journal.pone.0267344>.

Women's involvement in *anti-state grievances* is often prominent in water-related political unrest. Here again, research on the gendered nature of water protests in Karachi by Anwar and colleagues is instructive. Even though gender norms around sexual propriety restrict women to private, household spaces, many women have weighed the risks of struggling without water against the risks of protesting in public spaces and have chosen to protest their local officials about water services (though men have also been known to protest) (Linkage 2.1.3.I).²²⁶ In Khartoum, North Africa, women partook in and often organized demonstrations in several quarters—demonstrations which sometimes included blocking of streets with burning tires (though the management of these protests was passed to young men at night, during which time clashes between the men and the police would often break out).²²⁷ Environmental, demographic, and political feelings of injustice were often cited for these demonstrations (Linkage 2.1.3.J).²²⁸ Similarly, in Bolivia, research by Beltrán shows that women were a mobilizing force for citizen response to the privatization of water resources, and though they did not play leadership roles in the unrest, they were instrumental in the socialization of information and consultations.²²⁹ In Monterrey, Mexican women also transgressed restrictive gender norms between the 1950s and 1980s to organize public protests, lobby local and state government, and hijack water trucks in response to water shortages.²³⁰ Collins outlines

²²⁶ Anwar, Sawas, and Mustafa, ““Without Water, There Is No Life.””

²²⁷ Barbara Casciarri and Clément Deshayes, ““We Are Thirsty!”: The Protest Movement for Water Access in Khartoum 2015-2016,” in *Social Waters. Embeddedness, Environment and Justice in Greater Khartoum*, 2020, 6.

²²⁸ Casciarri and Deshayes, ““We Are Thirsty!”: The Protest Movement for Water Access in Khartoum 2015-2016,” 6.

²²⁹ Elizabeth Peredo Beltrán, “Water, Privatization and Conflict: Women from the Cochabamba Valley” (Published by the Heinrich Böll Foundation, Berlin, April 2004), https://www.boell.de/sites/default/files/assets/boell.de/images/download_de/internationalepolitik/gip4.pdf.

²³⁰ Vivienne Bennett, “Gender, Class, and Water: Women and the Politics of Water Service in Monterrey, Mexico,” *Latin American Perspectives* 22, no. 2 (1995): 76–99.

many motivations for women's water protests in Mexico: women wanted to avoid work absences due to waiting for water deliveries; they were frustrated with the increased workloads poor water management brought to them; and women wanted to right the wrongs of unequal water distribution.²³¹ Such research suggests that perhaps women may be motivated to participate in demonstrations based on a desire to reduce *exposure to violence/repression*, a motivation that typically motivates men as well (more research required to confirm the gendered nature of these motivations).

Political unrest over water scarcity has been recorded in many other settings. In Syria, where the connection between drought and political unrest has been well-documented, "early warnings were prescient: some of the earliest political unrest began around the town of Dara'a, which saw a particularly large influx of farmers and young unemployed men displaced off their lands by crop failures."²³² In Nigeria, the government violently clashed with a Maitatsine Islamist sect in the 1980s, and more recently with Boko Haram, though it was found that in both cases, the mobs were largely populated by dispossessed farmers and pastoralists who had been driven from their land by drought, most of whom were young men.²³³ Two other water-related uprisings of note are the Thirst Revolution in Egypt, and widespread protests in Iraq where water shortages for agriculture, weak or non-existent water infrastructure, reduced river flows, and pressure

²³¹ Victoria Collins, "Women and Water in Mexico City: Water Experts' Perceptions of Women's Relationship to Water and the Water Crisis" (Master's Thesis, Indiana, Hamilton Lugar School of Global and International Studies, Indiana University, 2020), 37, <https://www.proquest.com/docview/2408224985/abstract/3929B6BADD0141F5PQ/1>.

²³² Peter H. Gleick, "Water, Drought, Climate Change, and Conflict in Syria," *Weather, Climate, and Society* 6, no. 3 (July 1, 2014): 331–40, <https://doi.org/10.1175/WCAS-D-13-00059.1>.

²³³ Elizabeth Isichei, "The Maitatsine Risings in Nigeria 1980-85: A Revolt of the Disinherited," *Journal of Religion in Africa* 17, no. 3 (1987): 194–208, <https://doi.org/10.2307/1580874>; John Sunday Ojo, "Governing 'Ungoverned Spaces' in the Foliage of Conspiracy: Toward (Re)Ordering Terrorism, from Boko Haram Insurgency, Fulani Militancy to Banditry in Northern Nigeria," *African Security* 13, no. 1 (January 2, 2020): 77–110, <https://doi.org/10.1080/19392206.2020.1731109>.

on water systems due to influxes of migrants dominated political grievances, though little is known about the gender mix of the demonstrators.²³⁴ From this body of literature, one could reasonably infer that water shortages may trigger several motivations for women participating in protests/demonstrations related to *WASH*, in particular *increase survival* and *avoid abuse* (by those that control water sources). Though less clear from the literature, for men, it might be reasonable to assume that *personal security* and *exposure to violence/repression* (should water be withheld) are potential motivating factors. However, research by Mankad et al. suggests that socio-demographic differences may influence risk perception more than gender.²³⁵ Moreover, research by Hunnicutt and Gbaintor-Johnson shows healthy democratic structures such as responsive, trusted government representatives, can have a mediating influence over the likelihood of political unrest erupting over climate-caused stressors like water shortages.²³⁶

On the issue of whether climate-induced *WASH* challenges contribute to *grievances between societal groups*, there have been conflicting findings, though most appear to confirm the linkage. Raleigh and Urdal find that water scarcity increases the risk of civil conflict onset (though these links are often weak or negligible).²³⁷ Detges shows that communal violence is more likely in regions where the population lacks

²³⁴ Dylan O’Driscoll, “Emerging Trends of Conflict and Instability in Iraq” (Institute of Development Studies, 2018), 13–14, <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/14169>; Saker El Nour, Heather Elaydi, and Hussam Hussein, “Thirst Revolution: Practices of Contestation and Mobilisation in Rural Egypt,” *Contemporary Levant* 6, no. 2 (July 3, 2021): 169–84, <https://doi.org/10.1080/20581831.2021.1952003>.

²³⁵ Aditi Mankad et al., “Motivational Indicators of Protective Behaviour in Response to Urban Water Shortage Threat,” *Journal of Hydrology* 491 (May 29, 2013): 100–107, <https://doi.org/10.1016/j.jhydrol.2013.04.002>.

²³⁶ Patrick Hunnicutt and Kou Gbaintor-Johnson, “Environmental Deprivation and Political Unrest: Evidence from Grievances, Informal Political Opportunity, and Protest in Liberia” (September 20, 2022), 29.

²³⁷ Clionadh Raleigh and Henrik Urdal, “Climate Change, Environmental Degradation and Armed Conflict,” *Political Geography*, *Climate Change and Conflict*, 26, no. 6 (August 2007): 674–94, <https://doi.org/10.1016/j.polgeo.2007.06.005>.

access to improved water systems.²³⁸ In an HCSS report on interprovincial water challenges in Iraq, for instance, disputes between various of the 18 provinces have broken out in recent years, some of which have resulted in deadly conflict.²³⁹ Additionally, from the work of Graham and colleagues, it is evident that tensions between classes, as well as between host populations and immigrants have erupted as a result of water shortages.²⁴⁰ On the other hand, Theisen finds that there is no effect of water scarcity on conflict risk, and in a separate study finds that previous drier years tend to *reduce* conflict risks.²⁴¹

Though these results are somewhat contested, there is enough evidence to suggest that water scarcity may play a role in causing or exacerbating *grievances between societal groups*, especially when combined with other socioeconomic factors (Linkage 2.1.3.K). As with the previous findings, the gender elements of *grievances between societal groups* are complex. Looking purely at how civil water conflicts impact women, it is important to note that, as with many types of political conflicts between groups, SGBV is often used as a weapon of revenge, intimidation, or fear, or as a means to achieve the other's acquiescence (Linkage 2.1.3.L). For instance, in research by Premchander on disagreements over the Cauvery river in India, men often use rape against the women in opposing groups in order to shame the other into complying with

²³⁸ Adrien Detges, "Local Conditions of Drought-Related Violence in Sub-Saharan Africa: The Role of Road and Water Infrastructures," *Journal of Peace Research* 53, no. 5 (September 2016): 696–710, <https://doi.org/10.1177/0022343316651922>.

²³⁹ Dorith Kool, Laura Birkman, and Bianca Torossian, "Interprovincial Water Challenges in Iraq: Initial Analysis of an Urgent and Under-Researched Crisis" (The Hague Centre for Strategic Studies, 2020), 2, <https://hcss.nl/wp-content/uploads/attachments/WPS-WorkingPaper-InterprovincialWaterChallenges.pdf>.

²⁴⁰ Graham, Desai, and McFarlane, "Water Wars in Mumbai," 122, 126.

²⁴¹ Ole Magnus Theisen, "Blood and Soil? Scarcity and Internal Armed Conflict Revisited," *Journal of Peace Research* 45, no. 6 (November 1, 2008): 801–18, <https://doi.org/10.1177/0022343308096157>; Ole Magnus Theisen, "Climate Clashes? Weather Variability, Land Pressure, and Organized in Kenya, 1989–2004," *Journal of Peace Research* 49, no. 1 (January 1, 2012): 81–96, <https://doi.org/10.1177/0022343311425842>.

demands.²⁴² Beyond direct attacks on women over water tensions, just as *WASH*-related duties are frequently organized according to gendered roles, so, too are the leadership roles in *WASH* management. In both Premchander's and Elstrott's work, gender-specific divisions of labour resulted in women doing most of the water-related work, but rarely ever serving in positions of power in water management or water dispute resolution.²⁴³ It may be reasonable to therefore assume that, since women don't lead in water management, women are likely less involved in direct political or kinetic conflict between groups over *WASH* resources. Nevertheless, given women's willingness to transgress gender norms to express *anti-state grievances* related to *WASH* services and resources, it is conceivable to imagine that motivations such as *increase survival* may also drive women to engage in conflict between societal groups as well. Furthermore, responding to rape used as a weapon of inter-group conflict, one could infer that women may be motivated to become involved in *WASH*-based violence or conflict by a desire to *avoid abuse*, though more research is required to confirm this hypothesis. Examining men's potential motivations for joining militant groups in *WASH* tensions, the *pull of networks* or concerns over *personal security* may be reasonable hypotheses to test regarding what would draw some into violence against other groups (no research is currently available). Furthermore, negative feelings about rape used against women may motivate feelings of *revenge* in men (and perhaps women) as well, though again, this must be tested to confirm the gender linkage.

²⁴² Maria Ines Fernandez Alvarez et al., *Gender and Sustainable Development: Case Studies*, ed. Smita Premchander and Christine Muller, Perspectives of the Swiss National Centre of Competence in Research (NCCR) North South, University of Bern 2 (Bern: NCCR North-South, 2006).

²⁴³ Alvarez et al., *Gender and Sustainable Development*; Jennifer Lynne Elstrott, "Water Scarcity in Rural Mozambique" (Water4 Foundation, December 2015), <http://rgdoi.net/10.13140/RG.2.1.1957.8007>.

Concerns over water scarcity have been cited as one of the most likely pathways along which climate-related *interstate tensions* might develop. The water war theory suggests that as water scarcity accelerates, along with ballooning populations, thirsty states will resort to violence against their neighbours—violence that may eventually spill over into full-scale water wars (Linkage 2.1.3.M).²⁴⁴ Yet, this perspective is also a contested one. Arguing against the theory is research by Ahmad et al., who contend that historical tensions over water resources have often resulted in international water management agreements and treaties dating back to 2500 BC.²⁴⁵ Indeed, Ahmad and colleagues suggest that through hydrodiplomacy (negotiation over and peaceful management of water resources), thousands of water management agreements have been established globally, most of which have remained intact, allowing communities to cooperate rather than engage in conflict.²⁴⁶ In a recent quantitative study, De Angelis et al. find that bilateral virtual water trade (the exchange of goods and services in which virtual water is embodied), openness may reduce the likelihood of the eruption of *interstate tensions*, suggesting the opportunity cost and loss of trade gains are important factors in a state's war calculations (and therefore possible angles for achieving peaceful resolution to water-related tensions).²⁴⁷

On the other hand, the literature countering this perspective is also growing. For instance, using empirical evidence of abundance/scarcity and uncertainty, Schmidt et al.

²⁴⁴ Manzoor Ahmad, Adil Khan, and Muhammad Imran Mehsud, "When States Go Thirsty: A Critical Analysis of Water War Thesis," *Global Strategic and Securities Studies Review* II, no. I (December 30, 2017): 4, [https://doi.org/10.31703/gssr.2017\(II-I\).01](https://doi.org/10.31703/gssr.2017(II-I).01).

²⁴⁵ Ahmad, Khan, and Mehsud, "When States Go Thirsty," 4.

²⁴⁶ Ahmad, Khan, and Mehsud, "When States Go Thirsty," 6; David Katz, "Desalination and Hydrodiplomacy: Refreshening Transboundary Water Negotiations or Adding Salt to the Wounds?," *Environmental Science & Policy* 116 (February 1, 2021): 171–80, <https://doi.org/10.1016/j.envsci.2020.11.012>.

²⁴⁷ Enrico De Angelis et al., "Virtual Water Trade and Bilateral Conflicts," *Advances in Water Resources* 110 (December 2017): 549–61, <https://doi.org/10.1016/j.advwatres.2017.04.002>.

show that a higher rate of volatility due to climate change increases the risk of new diplomatic conflicts and militarization of ongoing tensions over marine and river resources, as well as territory tied to water consumption (such as agricultural land).²⁴⁸ They note that climate variability can result in intensified competition over resources, as well as uncertainty about future resource shocks, either of which may initiate or intensify conflicts.²⁴⁹ Simmering tensions between Afghanistan and Iran have resulted in military rivalries that have delayed construction projects, and meant the construction of several dams by Afghanistan without consulting neighbouring countries.²⁵⁰ In particular, violent incidents over the Salma dam in Herat resulted in the deaths of some Indian contract workers, and there is widespread belief among Afghans that transboundary water disputes could lead to war.²⁵¹ A look at the global Water, Peace and Security tool shows that these countries are not alone in their struggles to agree on water management—large regions across Africa, Asia, and the Middle East are experiencing ongoing and emerging water-related conflicts.²⁵² In research on transboundary water treaties, Safi found that power imbalances between water treaty states may contribute to ongoing water conflicts, even after treaties are signed; treaties with a balance of power and resources, on the other hand, tend to decrease rates of conflict.²⁵³ Additionally, Katz’s research shows projects such as desalination plants used to solve water scarcity problems may even exacerbate

²⁴⁸ Cody J Schmidt, Bomi K Lee, and Sara McLaughlin Mitchell, “Climate Bones of Contention: How Climate Variability Influences Territorial, Maritime, and River Interstate Conflicts,” *Journal of Peace Research* 58, no. 1 (January 1, 2021): 132–50, <https://doi.org/10.1177/0022343320973738>.

²⁴⁹ Schmidt, Lee, and Mitchell, “Climate Bones of Contention.”

²⁵⁰ Gareth Price et al., *Attitudes to Water in South Asia* (London: Chatham House: The Royal Institute of International Affairs, 2014), 41.

²⁵¹ Price et al., *Attitudes to Water in South Asia*, 26.

²⁵² “Water, Peace and Security,” accessed May 23, 2022, <https://www.waterpeacesecurity.org/map>.

²⁵³ Maryam Safi, “‘We Are Fighting a Water War’: The Character of the Upstream States and Post-Treaty Transboundary Water Conflict” (Master’s Thesis, Uppsala Universitet, 2021), <https://www.diva-portal.org/smash/get/diva2:1565993/FULLTEXT01.pdf>.

existing tensions by changing power balances and putting new bodies of water in contention.²⁵⁴ Finally, Gizelis and Wooden's research suggests water scarcity alone isn't enough for intrastate conflict, but when combined with poor political institutions, it is far more likely.²⁵⁵ The preceding research hints that *personal security* may play a role in engaging men in *interstate tensions* over water resources, though *pull of networks* may also be at work should there be an element of ethnic or religious tension as well (though research is lacking). Finally, should women may become directly involved in *WASH*-related conflict, *increase survival* and *greater opportunities* are possible motivations, though no research is available on women's involvement in such conflicts.

No simple conclusions are possible when summing up the literature on *WASH* and *National/International Security* concerns. Certainly, climate change is expected to contribute to water scarcity. Governments may be ill-equipped to equitably distribute such resources to the public, and likewise malign actors may seize *WASH*-related resources, controlling them for private use or profit. Additionally, elites or rebel/extremist groups may capitalize on sentiments of fear, deprivation, or injustice, using hypermasculine messages such as the need to securitize water resources to gain or maintain power and provide support to those aligned with them. Water shortages are likely to act as a pull factor to mobilize groups to protest government or ruling elite failures, with women even overcoming conventional gender norms to make their dissatisfaction known. Furthermore, climate-induced water shortages may create or amplify tensions between existing rivals—tensions which may also spill over into

²⁵⁴ Katz, "Desalination and Hydrodiplomacy."

²⁵⁵ Theodora-Ismene Gizelis and Amanda E. Wooden, "Water Resources, Institutions, & Intrastate Conflict," *Political Geography* 29, no. 8 (November 1, 2010): 444–53, <https://doi.org/10.1016/j.polgeo.2010.10.005>.

interstate tensions. Nevertheless, numerous case studies demonstrate that hydrodiplomacy may well be a path to avoiding conflict over water resources.

2.1.3.3. Summary of Gender-Climate-Security and WASH

A summary visualizing Gender-Climate-Security connections to *WASH* can be found in Figure 11. A list of Diagnostic Questions in Table 51 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

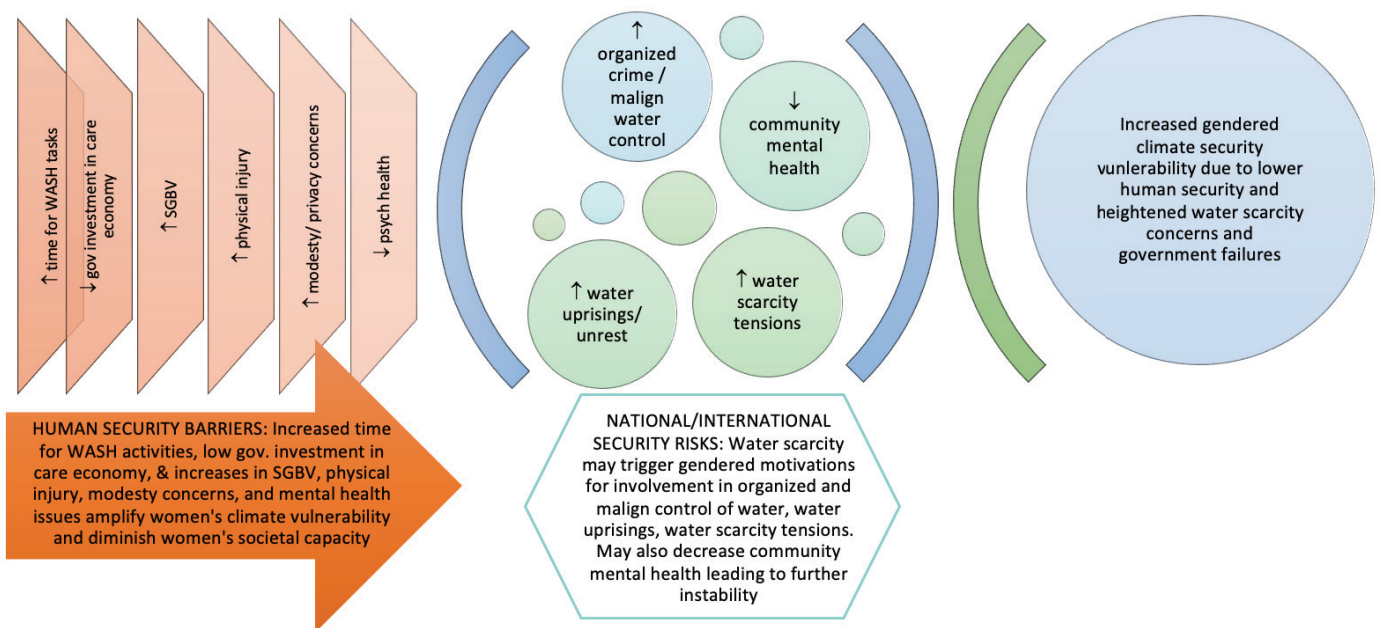


Figure 11. Gendered Climate Security Vulnerabilities in WASH.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor WASH.

2.1.4. Food Security

Table 14. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Food Security.

Dominant Approach: Measured in two ways. First, by the prevalence of undernourishment, which looks at the percentage of the population with below-minimum dietary energy consumption. Second, by the average dietary energy supply adequacy, as indicated by the Dietary Energy Supply (DES) as a percentage of the Average Dietary Energy Requirement (ADER).²⁵⁶

FPEcon/FPEcol Approach: Examining only the daily energy and nourishment requirements of a population not only ignores the gendered inequalities perpetuated by the culture and laws that determine how food is distributed within individual households and communities, it also invisibilizes the gendered ways in which the food system functions, to the detriment of women and other minority genders and populations. Looking at gendered discrimination in the provision of food, Sachs provides an analysis of the Food and Agriculture Organization's (FAO's) four pillars of food security (availability, access, utilization, and stability) from a feminist perspective, which is summarized in the following discussion and analyzed in terms of climate change connections.²⁵⁷

Beyond the basic biophysical aspects of food security, FPEcon also uses the concept of social reproduction as outlined by Rai and colleagues to interrogate the socioeconomic structures that underpin food systems.²⁵⁸ This aspect of food security will also be explored further in the ensuing discussion. Considering these aspects of food security opens up important discussions about food sovereignty (a concept explored in greater depth in the *Human Security* section that follows).

Brief comparison of dominant and feminist definitions of Food Security.

²⁵⁶ Remmits, Dick, and Rademaker, "Climate Security Assessment," 73–74.

²⁵⁷ Carolyn Sachs, "Feminist Food Sovereignty: Crafting a New Vision," vol. 58 (Presented at Proceedings of Food Sovereignty: A Critical Dialogue International Conference, Yale University: The Journal of Peasant Studies, 2013), 3–5, https://www.tni.org/files/download/58_sachs_2013_0.pdf.

²⁵⁸ Rai, Hoskyns, and Thomas, "Depletion and Social Reproduction," 3.

Table 15. Short Overview of the Food Security Gender-Climate-Security Linkages.

Human Security ²⁵⁹	Gender Equality-Security Mechanisms
Linkage 2.1.4.A. Women's farm work is invisible/devalued/underpaid → the climate-related information/education needs of women farmers are often excluded → climate adaptive extension services are dominated by men and not delivered with women's needs in mind (impacting <i>food availability</i>)	<i>Societal capacity</i>
Linkage 2.1.4.B. Women's farm work is invisible/devalued/underpaid → the climate-related asset security concerns of women farmers are often ignored → women are barred from protecting/replacing lost assets due to discriminatory ownership and access (to financial services) norms and laws → women lose land and assets (impacting <i>food availability</i>)	<i>Societal capacity</i>
Linkage 2.1.4.C. Women's farm work is invisible/devalued/underpaid → women have fewer climate coping financial assets and cannot hire additional labour to support adaptation (due to financial limitations) → the climate adaptive support needs of women farmers are often overlooked (impacting <i>food availability</i>)	<i>Societal capacity</i>
Linkage 2.1.4.D. Climate change may damage or destroy women's kitchen gardens and yard livestock assets → women are likely to have a harder time feeding their families (impacting <i>food access</i>)	<i>Societal capacity</i>
Linkage 2.1.4.E. Climate change is likely to cause lower food quantity and nutritional quality → women are likely to experience higher rates of malnutrition → increased nutritional requirements during pregnancy may increase risks of pregnancy complications, poor infant health → women may experience lower quality of life and higher rates of depression and anxiety (impacting <i>food utilization</i>)	<i>Societal capacity</i>

²⁵⁹ Human Security Gender-Climate-Security Linkages are categorized based on Forsberg and Olsson's Gender Equality-Security Mechanisms including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security²⁵⁹	Gender Equality-Security Mechanisms
<p>Linkage 2.1.4.F. Climate change may impact food quality and nutritional availability → gendered power imbalances may prevent women from controlling food use within the home → women may eat last and least (especially following climate disasters), resulting in higher rates of food insecurity among women → women may experience higher disease risks due to malnutrition (impacting <i>food utilization</i>)</p>	<p><i>Societal capacity</i></p>
<p>Linkage 2.1.4.G. Climate change may impact women’s personal food security due to all other factors mentioned → women’s overall wellbeing may suffer → breastfeeding may become more difficult, impacting family food security (impacting <i>food utilization</i>)</p>	<p><i>Societal capacity</i></p>
<p>Linkage 2.1.4.H. Climate change is expected to cause food price fluctuations and increases → women may have lower control over household emergency supplies due to family power imbalances → women’s food insecurity may increase (impacting <i>food stability</i>)</p>	<p><i>Societal capacity</i></p>
<p>Linkage 2.1.4.I. Climate change is expected to cause food price fluctuations and increases → food price instabilities impact women and children the most profoundly → women may be compelled to shift funds from other necessities to food purchases → women’s lower earnings will be further diminished, decreasing their overall climate coping capacity (impacting <i>food stability</i>)</p>	<p><i>Societal capacity</i></p>

National/International Security²⁶⁰	Pathway	Motivational Mechanisms
Linkage 2.1.4.J. Climate-caused food insecurities may lead to ‘insufficient quantity’ of food → may trigger feelings of frustration or inequity as well as uncertainty/worry → may increase crime rates, especially among low-income populations/countries	Crime/ violence/ extremism	<i>Increase survival</i> (typically women) [§] and <i>personal security</i> (typically men) [§]
Linkage 2.1.4.K. Climate change may increase food scarcity → may lead to feelings of shame, embarrassment, and inequity → may trigger frustration or anger at inadequate quality or social unacceptability of food choices (food insecurity tensions mediated by economic decline)	Crime/ violence/ extremism	Women more likely to be involved in property crime; Men more likely involved in violent crime // <i>Fundamentalist ideology, avoid abuse</i> (typically women) [§] and <i>exposure to violence/repression</i> (typically men) [§] motivations
Linkage 2.1.4.L. Climate change may cause changes rainfall/temperature patterns → agricultural productivity may decline → economic growth may be stunted → elite flight may lead to evisceration of state institutions → inequities and price gouging may trigger anger/frustration → political instability and protests may develop (food insecurity tensions mediated by economic decline)	Anti-state grievance	[Requires research] <i>Avoid abuse by</i> (typically women), [∅] <i>revenge, and exposure to violence/repression</i> (typically men) [∅]

²⁶⁰ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security²⁶⁰	Pathway	Motivational Mechanisms
Linkage 2.1.4.M. Climate change is likely to increase scarcity of food resources (land, water, etc.) → insufficient quantity may trigger uncertainty/worry → conflicts/ protests over geographic areas or agricultural resources may arise (a <i>food access</i> issue leading to tensions mediated by economic decline)	Grievances between societal groups / Interstate tensions	<i>Increase survival</i> [§] (typically women) and <i>personal security</i> [§] (typically men)
Linkage 2.1.4.N. Climate change is likely to increase scarcity of food supplies → insufficient quantity may trigger uncertainty/worry → supply-side tensions may arise over available food supplies (a <i>food availability</i> issue leading to tensions mediated by economic decline)	Grievances between societal groups / Interstate tensions	<i>Increase survival</i> [§] (typically women) and <i>personal security</i> [§] (typically men)
Linkage 2.1.4.O. Climate change may decrease availability of productive land → women and men may have to actively defend their land against theft/appropriation	Grievances between societal groups	<i>Increase survival</i> [§] (typically women) and <i>personal security</i> [§] (typically men)
Linkage 2.1.4.P. Climate change leads to food scarcity → worries over insufficient supplies may lead the public to experience anger/frustration due to inequities/price gouging → weak states lacking democratic systems and good governance (especially with existing tensions) may experience intra and interstate violence/conflict (food insecurity tensions mediated by economic decline)	Grievances between societal groups / Interstate tensions	[Requires research] <i>Increase survival</i> (typically women), [∅] <i>pull of networks</i> , and <i>concern over personal security</i> (typically men) [∅]
Linkage 2.1.4.Q. Climate change may lead to food resource scarcity (land, water, etc.) → elites may engage in land grabbing, neoliberal economic development, and other approaches, resulting in formation of a landless peasant class → may engender feelings of anger, frustration, inequity → may trigger violence and conflict (food insecurity tensions triggered by power imbalances in food resource management distortions)	Anti-state grievances / Grievances between societal groups	[Requires research] <i>Increase survival</i> (typically women), [∅] <i>pull of networks</i> , and <i>concern over personal security</i> (typically men) [∅]

National/International Security ²⁶⁰	Pathway	Motivational Mechanisms
Linkage 2.1.4.R. Climate change may trigger significant land development → in regions formerly operated by customary land tenure, transformation of social/economic/political structures may create new rich/poor divides (much more severe for women in patriarchal societies) → anger and frustration over inequities may lead to conflicts between the community and government/militaries and/or community and corporations (food insecurity tensions triggered by power imbalances in food resource management distortions)	Anti-state grievances / Grievances between societal groups	<i>Greater opportunities</i> [§] (typically women), <i>exposure to violence/repression</i> , [§] <i>pull of networks</i> , and <i>revenge</i> (typically men)

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with a §; those with no research with ∅. For a full explanation of each Linkage, see sections 2.1.4.1 and 2.1.4.2.

2.1.4.1. Food Security and Human Security

Within the *Gendered Climate-Security Lifecycle*, GCS-Factor *Food Security* is expected to be severely impacted by climate breakdown that affects both agriculture and marine ecosystems. Drawing from the concept of social reproduction, as well as Sachs' feminist critique of FAO's four pillars of food security (availability, access, utilization, and stability), the following analysis will develop nine *Human Security Gender-Climate-Security Linkages* related to women's roles in farm work; women's responsibility for kitchen gardens and yard livestock; the impact of nutritional quality of food on women (especially when pregnant and breastfeeding); and the impact of food price fluctuations.

With these concepts in mind, gendered climate-based food security is certainly within the *societal capacity Gender Equality-Security Mechanism of Human Security*.²⁶¹

Temperature and rainfall variations, the increase of extreme heat and weather events, salt water infiltration, and other climate-related factors are expected to have a detrimental impact on agricultural crop yields and economics in both large-scale and smallholder farms and aquaculture systems (though data on agriculture yields in developing countries and smallholder farms needs further development).²⁶² Food insecurity will also increase due to climate change impacts in marine and fishery environments, such as sea level rise, ocean acidification, increased tropical storm and hurricane activity, and rising coastal water temperatures.²⁶³ Given that marine-based foods provide 17% of animal protein (7% total protein) consumed globally, any reduction in marine and fishery yields will have a significant impact on human health.²⁶⁴

Global food security will depend in large part on how well subsistence and commercial farmers alike are able to adapt to climate change, a large percentage of whom are women. Employing two of the three social reproduction pillars developed within FPEcon (unpaid production of goods and services and reproduction of culture and ideology), we can examine women's contributions to food systems that are frequently invisible, devalued, underpaid, and unpaid. As feminist scholars Picchioni et al. explain:

²⁶¹ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three '*socioeconomic development*' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*').

²⁶² Colin Carter et al., "Identifying the Economic Impacts of Climate Change on Agriculture," *Annual Review of Resource Economics* 10, no. 1 (2018): 361–80, <https://doi.org/10.1146/annurev-resource-100517-022938>; Avery S. Cohn et al., "Smallholder Agriculture and Climate Change," *Annual Review of Environment and Resources* 42, no. 1 (2017): 347–75, <https://doi.org/10.1146/annurev-environ-102016-060946>.

²⁶³ Achmad Rizal and Zuzy Anna, "Climate Change and Its Possible Food Security Implications Toward Indonesian Marine and Fisheries," *World News of Natural Sciences*, no. 22 (2019): 119–28.

²⁶⁴ Abigail Bennett et al., "Recognize Fish as Food in Policy Discourse and Development Funding," *Ambio* 50, no. 5 (May 1, 2021): 981–89, <https://doi.org/10.1007/s13280-020-01451-4>.

Not only do women provide key contributions by producing, preparing, processing and marketing most of the food, especially in the rural areas of the global South, they are also responsible for myriad other critical activities, productive and ‘reproductive’, that allow households, communities and food systems to function and thrive, particularly in periods of crisis and in the absence of well-functioning public welfare systems.²⁶⁵

Picchioni and colleagues go on to suggest that food systems within the neoliberal economy can only function because of the contributions of low-skilled, low-paid workers, the majority of whom are women, especially migrant, indigenous, and rural women. Gendered disadvantages within the global food system are further compounded by local laws and governance structures that prevent women from owning or accessing land, finance systems, agricultural technology, and markets.²⁶⁶

Looking first at *food availability*, conventional understandings focus primarily on agricultural production and yield at the global, national, and regional levels, and include domestic production and imports.²⁶⁷ Sachs points out that this definition fails to consider women as agricultural producers who are responsible for generating approximately 40% of the world's food. According to Huyer, 60% of women in South Asia, Sub-Saharan Africa, and Oceania, and 80% of women in in least-developed countries, work in the agriculture sector.²⁶⁸ Women also make up 50% of the fisheries and aquaculture

²⁶⁵ Fiorella Picchioni, Valentina Franchi, and Clara Park, “Feminist Approaches to Transforming Food Systems: A Roadmap towards a Socially Just Transition,” *Tropical Agriculture Association Journal* 42 (April 20, 2021): 18.

²⁶⁶ Picchioni, Franchi, and Park, “Feminist Approaches to Transforming Food Systems,” 18.

²⁶⁷ Sachs, “Feminist Food Sovereignty: Crafting a New Vision,” 3–4.

²⁶⁸ Carolyn Sachs, “Feminist Food Sovereignty: Crafting a New Vision” (*Food Sovereignty: A Critical Dialogue International Conference, Yale University, 2013*), 15, https://www.tni.org/files/download/58_sachs_2013_0.pdf; Sophia Huyer, “Closing the Gender Gap in Agriculture,” *Gender, Technology and Development* 20, no. 2 (January 1, 2016): 105–16, <https://doi.org/10.1177/0971852416643872>.

workforce.²⁶⁹ Furthermore, women agricultural workers often produce food with greater variety and for local consumption, and therefore directly contribute to dietary diversity and nutrition within their communities.²⁷⁰ Yet women are systematically denied access to six key resources and inputs required for agricultural and fisheries production: land ownership/control (often due to discriminatory inheritance/property rights that limit women to owning only small plots of land); financial systems (denying them access to loans); agriculture technology (such as irrigation infrastructure and other machinery that may be too heavy or culturally inappropriate for women to use); information/education and extension support systems (often government- or NGO-run systems that provide information and tools); and (farmworker) labour, resulting in significant power imbalances that often stunt women farmers' productivity.²⁷¹ In the fisheries and aquaculture sectors, women also face wage discrimination, lack access to productive resources, technology, and markets.²⁷²

The aforementioned gender inequalities are the baseline for many women farmworkers around the world. However, as climate breakdown intensifies, such gender discrimination within the agriculture production sector is likely to intensify these

²⁶⁹ Nikita Gopal et al., "Expanding the Horizons for Women in Fisheries and Aquaculture," *Gender, Technology and Development* 24, no. 1 (January 2, 2020): 1–9, <https://doi.org/10.1080/09718524.2020.1736353>.

²⁷⁰ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 3–4.

²⁷¹ Huyer, "Closing the Gender Gap in Agriculture," 2016, 3–4; Meryl J. Williams et al., "Gender as the Missing Link for Improving Climate Change Adaptation in Fisheries and Aquaculture," in *Proceedings of FishAdapt: The Global Conference on Climate Change Adaptation for Fisheries and Aquaculture*, ed. Johanna Johnson (Bangkok: Food and Agriculture Organization: Fisheries and Aquaculture Department, 2016), 189–201, https://d1ysz50cxb9zwl.cloudfront.net/sagn3caeNsKJOa7ZTOdYtLPcmgCNiSG94i-s5XnbeQBpXcmCIFDZwxg9KUqYd2Dh/by/523424/as/file.pdf?Expires=1661815996&Signature=gM0uvqmU7n8DuaeuVQpyk9zn-XbRR4JUT3M9lrusVIp~00P5--L-YkvmU9Z2VICIB9Ip2ke8ROa~rBPXgGbM2Vskbb6tsd-skTqt5L8QmjHCqU3pSVbghhAaKymZ14BFRfKHKjeRq358cDZ8mV74kgql40FJfCGMMLFel6Kn8SEGWBsJGAocwLqBtABWNE6bDF7kpRto6Aurh9g~GDkd7ecznUIY~dtAawguG4MH0hSW91AtbXo3btJ8f8b95u0qRDqdgEIFbIza4qZxrGxdHvuyuFP2u2rqZWedDnlMeqf9Qs-4J5uAsRnn0qT3Dr2o4Mnglc9dAZc0awN0GeARQ__&Key-Pair-Id=APKAJAERRT46LD6FN4NA.

²⁷² Gopal et al., "Expanding the Horizons for Women in Fisheries and Aquaculture."

inequities, severely hampering women's *Coping Capacity*, particularly within three spheres: information/education, asset security, and access to climate adaptation measures. The first factor of *food availability*, information and education, looks at women's and men's levels of access to information that would assist in adapting to climate change (Linkage 2.1.4.A). For instance, Jost et al. note that men are far more likely to access weather forecasts and use information services about market opportunities or price changes since women are less likely to own a mobile phone or have access to a radio or electricity.²⁷³ Huyer has shown that when women farmers have access to more information on agricultural production practices, not only do they gain confidence and increase their yields, they also increase their power within their households, resulting in greater decision-making control and control over finances and assets.²⁷⁴ In the second factor of *food availability* is asset security. Goh finds that climate change will affect both women's and men's agricultural assets depending on the context; in regions where gender disparities prevent women from owning assets and land, women are more likely to have to sell off their small livestock and other small assets to survive, leaving them with a higher degree of exposure to future climate shocks (Linkage 2.1.4.B).²⁷⁵ Additionally, rarely are women's agricultural tools and techniques supported by extension services and agricultural innovation, further entrenching gender inequalities in agricultural systems.²⁷⁶ Looking at the third factor of *food availability*, access to climate adaptation measures,

²⁷³ Christine Jost et al., "Understanding Gender Dimensions of Agriculture and Climate Change in Smallholder Farming Communities," *Climate and Development* 8, no. 2 (March 14, 2016): 133–44, <https://doi.org/10.1080/17565529.2015.1050978>.

²⁷⁴ Huyer, "Closing the Gender Gap in Agriculture," 2016, 109.

²⁷⁵ Amelia H. X. Goh, "A Literature Review of the Gender-Differentiated Impacts of Climate Change on Women's and Men's Assets and Well-Being in Developing Countries:," *CAPRI Working Papers*, CAPRI Working Papers (International Food Policy Research Institute (IFPRI), 2012), 6, <https://ideas.repec.org/p/fpr/worpps/106.html>.

²⁷⁶ Huyer, "Closing the Gender Gap in Agriculture," 2016, 107.

gender inequalities within farm work frequently restrain women's opportunities to participate in climate adaptation projects. Financial and resource constraints, men's domination of education and extension spaces, and the need for greater labour inputs to manage climate adaptation systems (challenging for women due to their unpaid care work responsibilities) often preclude women's participation in such initiatives (Linkage 2.1.4.C.).²⁷⁷ Seen as a whole, these *food availability* factors frequently result in women having fewer resources and abilities to draw upon to adapt to climate change, with gender gaps expected to widen as the effects of climate change intensify.²⁷⁸ A gender transformative approach to *food availability* would therefore address the underlying gender inequalities within the agriculture sector, customary family laws, and education systems.

Next, looking at *food access*, the traditional definition focuses on a household's access to resources to produce, buy, or receive food (from the government or other agency). However, as noted, women's ability to produce food as farmers is often limited due to lack of access to land, water, and education.²⁷⁹ In addition to formal farm work, women frequently are responsible for operating/maintaining very precarious kitchen gardens and yard livestock used to feed their families, both of which may come under increasing threat as climate breakdown intensifies (Linkage 2.1.4.D). In a study of hurricanes Mitch and Stan in Chiapas, Mexico, Jungehülsing shows that many of these assets were lost due to rising water levels, a problem that is likely to be repeated globally,

²⁷⁷ Jost et al., "Understanding Gender Dimensions of Agriculture and Climate Change in Smallholder Farming Communities."

²⁷⁸ Mary Nyasimi and Sophia Huyer, "Closing the Gender Gap in Agriculture under Climate Change," *Agriculture for Development*, June 6, 2017, <https://cgspace.cgiar.org/handle/10568/81376>.

²⁷⁹ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 4–5.

affecting many women's abilities to feed their families.²⁸⁰ Women may also possess fewer resources with which to buy food due to their lower earnings, a reality that will intensify for many women as their unpaid care burdens increase due to climate change, taking them away from income- and food-generating activities.²⁸¹ Gender transformational approaches within how people *access food* would therefore require similar changes to those recommended for *food availability*, in addition to addressing unequal responsibilities for unpaid care work and gender pay disparities.

Food utilization typically refers to an individual's ability to meet their nutritional and dietary needs, and considers food quality, safety, and nutrition, as well as access to safe water.²⁸² Through breastfeeding, women physically provide *Food Security* in their roles as mothers, and women the world over do the vast majority of food sanitation, preparation, and cooking.²⁸³ Yet a gender-blind understanding of the utilization of food ignores gender norms that often prevent women from receiving breastfeeding/nutrition education, which has knock-on effects for the health of their families (Linkage 2.1.4.G).²⁸⁴ Importantly, women are often unable to control the utilization of food, even within their own households, due to gendered power imbalances (Linkage 2.1.4.F).²⁸⁵ For instance, numerous studies have found that women often eat and drink less often due to lower bargaining power within the household (reinforcing the reality that many women

²⁸⁰ Jenny Jungehülsing, "Women Who Go, Women Who Stay: Reactions to Climate Change" (Heinrich Böll Stiftung, November 2010), 46, https://www.boell.de/sites/default/files/assets/boell.de/images/download_de/MIGRACION_Gender_Climate_Mexico_Singles.pdf.

²⁸¹ Goh, "A Literature Review of the Gender-Differentiated Impacts of Climate Change on Women's and Men's Assets and Well-Being in Developing Countries," 9.

²⁸² Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 5.

²⁸³ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 5.

²⁸⁴ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 5.

²⁸⁵ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 4–5.

often eat ‘last and least’).²⁸⁶ These studies suggest that women’s meal-skipping practices tend to increase during natural disasters (such as those caused by climate change), especially to ensure their children have sufficient food.²⁸⁷ According to Behrman et al., missed meals can lead to malnutrition in women (and also children)—a significant threat since it can increase the risks of contracting diseases (such as malaria, diarrheal infections, and acute respiratory infections) in post-disaster scenarios.²⁸⁸ Additionally, given women’s increased nutritional needs during pregnancy and breastfeeding, food insecurity poses heightened risks of pregnancy complications (gestational diabetes, anemia, hypertension); poor infant health outcomes (low birth weight, increased birth defects, poor developmental outcomes); as well as women’s lower quality of life and increased risks of depression and anxiety (Linkage 2.1.4.E).²⁸⁹ Crucially, due to the social reproduction roles women play in meeting family *Food Security* and nutrition needs, a woman’s health is often intimately tied to that of her children, “both in the womb and from birth,” and other dependents.²⁹⁰ Primarily, household-level changes to gender norms are required for gender transformation of *food utilization*.

²⁸⁶ Sogani, “Gender Approaches in Climate Compatible Development”; Sarah Fuhrman et al., “Left Out and Left Behind: Ignoring Women Will Prevent Us from Solving the Hunger Crisis,” Policy Report (CARE International, August 2020), 2, <https://www.care-international.org/files/files/LeftOutandLeftBehind.pdf>; H  l  ne Botreau and Marc J Cohen, “Gender Inequalities and Food Insecurity: Ten Years after the Food Price Crisis, Why Are Women Farmers Still Food-Insecure?” (Oxfam, 2019), 8, <https://policy-practice.oxfam.org/resources/gender-inequalities-and-food-insecurity-ten-years-after-the-food-price-crisis-w-620841/>.

²⁸⁷ Sogani, “Gender Approaches in Climate Compatible Development,” 22.

²⁸⁸ Julia A. Behrman, Elizabeth Bryan, and Amelia Goh, “Gender, Climate Change, and Group-Based Approaches to Adaptation,” in *Policy Note for: Enhancing Women’s Assets to Manage Risk under Climate Change: Potential for Group-Based Approaches*, ed. Claudia Ringler (Washington, D.C.: International Food Policy Institute, 2014), 3–8, <https://www.ifpri.org/publication/gender-climate-change-and-group-based-approaches-adaptation>.

²⁸⁹ Fiona H. McKay et al., “Systematic Review of Interventions Addressing Food Insecurity in Pregnant Women and New Mothers,” *Current Nutrition Reports* 11, no. 3 (May 2, 2022): 486–99, <https://doi.org/10.1007/s13668-022-00418-z>.

²⁹⁰ Bogdan Bazga, “Price Volatility, the Main Component of Food Security,” *Calitatea: Acces La Success* 13, no. 1 (April 2012): 7–15.

Finally, *food stability* refers to the year-by-year stability of food supplies, which is affected by seasons, storage facilities, prices, and access to emergency supplies (Linkage 2.1.4.H).²⁹¹ An IPCC analysis of food insecurity and climate change found the following regarding climate change's impacts on food systems:

models projected a 1–29% cereal price increase in 2050 ... Declining food availability caused by climate change is likely to lead to increasing food cost impacting consumers globally through higher prices and reduced purchasing power, with low-income consumers particularly at risk from higher food prices. Higher prices depress consumer demand, which in turn will not only reduce energy intake (calories) globally, but will also likely lead to less healthy diets with lower availability of key micronutrients and increase diet-related mortality in lower and middle-income countries.²⁹²

However, crises such as conflict and climate change impact food price stability differently for various groups, with women and children often the most severely impacted.²⁹³ Instability in food prices typically prompt those living with poverty to shift their income from other necessities to food purchases, however for women who earn less and have less control over household finances, such shifts are often extremely challenging, if not impossible (Linkage 2.1.4.I).²⁹⁴ Here, too, gender pay disparities and inequalities in the distribution and control of emergency supplies should be addressed within a gender transformative approach to food insecurity.

The preceding discussion considered how gender intersects with FAO's four pillars of *Food Security* (availability, access, utilization, and stability), contributing to

²⁹¹ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 6.

²⁹² C. Mbow et al., "Food Security," in *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems* (IPCC, 2019), 460–62, https://www.ipcc.ch/site/assets/uploads/2019/11/08_Chapter-5.pdf.

²⁹³ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 6.

²⁹⁴ Hélène Botreau and Marc J. Cohen, "Chapter Two - Gender Inequality and Food Insecurity: A Dozen Years after the Food Price Crisis, Rural Women Still Bear the Brunt of Poverty and Hunger," in *Advances in Food Security and Sustainability*, ed. Marc J. Cohen, vol. 5 (Elsevier, 2020), 53–117, <https://doi.org/10.1016/bs.af2s.2020.09.001>.

gendered inequalities in farm work; increased unpaid household work; poorer nutritional quality and quantity available; and more challenging food economics. Lack of political representation, empowerment, networks, and education are likely to constrain women farmers and women seeking food for their families. As climate change intensifies food insecurity in these ways, women's societal capacity is very likely to suffer, along with that of their communities, raising the risk of further political instability and exposure to conflict and violence.

A concept known by feminists such as Sachs as 'food sovereignty' is helpful in examining *Food Security* with a gender transformative lens. Food sovereignty refers to the ability of farmers and farm workers, small producers, and local residents to control their own food systems, including production modes, food cultures, food environments, and markets.²⁹⁵ For instance, rather than seeing food through a neoliberal lens which views food as a global commodity, Sachs explains that food sovereignty is the basic right to healthy, culturally appropriate food, and produced using small-scale agriculture systems using a variety of seeds saved rather than through the use of industrial-scale monoculture systems that rely on the patenting of seeds as genetic commodities.²⁹⁶ Seeing food this way makes women's contributions to the food system visible, including women's careful protection and preservation of local seeds, production for the family, production through sustainable farming for the market, and performance of food-related activities as part of social reproduction.²⁹⁷ For instance, in Afghanistan and Tajikistan, women are typically responsible for holding knowledge regarding rainfall, temperature

²⁹⁵ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 7.

²⁹⁶ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 7.

²⁹⁷ Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 7.

changes, soil health, local plans, and livestock.²⁹⁸ True food sovereignty would transform the underlying gender inequalities in the agriculture, fisheries, and household systems that increase women’s exposure to the impacts of climate change. Glazebrook et al. suggests that effective investment in women farmers would require, “systemic interventions into agricultural policy, governance, education, and industry; be directed at men as well as women; and use gender metrics, for example, quotas, budgets, vulnerability and impacts assessments, to generate assessment reports and track gender parity in agriculture.”²⁹⁹

2.1.4.2. Food Security and National/International Security

Within the *Gendered Climate-Security Lifecycle*, the GCS-Factor of *Food Security* has been connected to all four types of *National/International Security* concerns by numerous authors.³⁰⁰ Like water scarcity, food shortages have been associated with a range of strong and highly personal reactions which may be the impetus for violent responses by those impacted. Agnew, for instance, suggests food insecurity can lead to anger, frustration, and a sense of inequity, especially when others have more, or because of corporate or government price gouging.³⁰¹ More specifically, in a cross-country meta-analysis, Coates et al. found four core experiential domains of household food insecurity

²⁹⁸ Alvin Chandra et al., “Gendered Vulnerabilities of Smallholder Farmers to Climate Change in Conflict-Prone Areas: A Case Study from Mindanao, Philippines,” *Journal of Rural Studies* 50 (February 2017): 45–59, <https://doi.org/10.1016/j.jrurstud.2016.12.011>.

²⁹⁹ Tricia Glazebrook, Samantha Noll, and Emmanuela Opoku, “Gender Matters: Climate Change, Gender Bias, and Women’s Farming in the Global South and North,” *Agriculture* 10, no. 7 (July 3, 2020), <https://doi.org/10.3390/agriculture10070267>.

³⁰⁰ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

³⁰¹ Robert Agnew, “Dire Forecast: A Theoretical Model of the Impact of Climate Change on Crime,” *Theoretical Criminology* 16, no. 1 (2012): 28.

(findings summarized in Table 16 with virtually no gender variation, suggesting that although the magnitude and timing of food insecurity may impact women and men differently, it is likely to trigger similar emotional responses in individuals regardless of gender.³⁰² Coates' experiential domains and subdomains will help to inform the analysis of who may perpetuate crime, violence, and conflict in response to food insecurities.

Table 16. Four Core Household Food Insecurity Experiential Domains.

	Domain			
	Uncertainty and worry	Inadequate quality	Insufficient quantity	Social unacceptability
Subdomain	Worry about short-term food security	Not eating balanced meals / healthy, nutritious foods	Ran out of food	Resorted to socially unacceptable food acquisition methods (like stealing; gender-inappropriate work roles)
	Uncertainty about long-term food security	Limited variety within-meals or between meals	Quantity of food consumed is insufficient	Resorted to eating socially unacceptable foods (shame, embarrassment)
		Limited ability to have preferred / luxurious / less expensive / culturally acceptable foods	Resorted to eating less or not at all	
		Resorted to eating socially unacceptable foods (shame, embarrassment)	Typical meal patterns disrupted	
		Relied on unsafe or stale foods		

Research conducted by Coates et al. summarized by the author.³⁰³ These findings will be useful in analyzing the motivations behind acts of crime, violence, and conflict related to food insecurity.

³⁰² Jennifer Coates et al., "Commonalities in the Experience of Household Food Insecurity across Cultures: What Are Measures Missing?," *The Journal of Nutrition* 136, no. 5 (May 1, 2006): 1438S-1448S, <https://doi.org/10.1093/jn/136.5.1438S>.

³⁰³ Coates et al., "Commonalities in the Experience of Household Food Insecurity across Cultures."

Though the relationship between food insecurity and rates of *crime/violence/extremism* is complex, some recent studies show a strong connection. A study by Islam of 2001-2018 data from 25 developing countries (where severe food shortages are more likely to occur) shows a significant positive relationship between violent crime and hunger, whereby a 10% increase in hunger raises violent crime by 3.6%.³⁰⁴ Food security (and therefore crime rates) in developed countries will also be impacted by climate change, especially among low-income populations within those countries (Linkage 2.1.4.J).³⁰⁵ An empirical study of food insecurity and violent crime rates in the US by Caughron, for instance, shows that for every one percent increase in food insecurity, there is an increase in violent crime of approximately 12%.³⁰⁶ [NB: as discussed in section 1.2.3.2, men are more likely to be involved in violent crimes such as assaults, while women may be more involved in property crimes, however more research is required to connect gendered crime patterns to *Food Security* issues]. While these studies do not identify specific motivations, when considering climate-related motivations for *crime/violence/extremism*, the most obvious of Coates' domains are 'insufficient quantity' or 'uncertainty and worry,' which may trigger motivations such as *increase survival* in women or *personal security* in men. Additionally, it may be reasonable to postulate that feelings related to 'inadequate quality' or 'social unacceptability,' both of which can trigger shame and embarrassment and perhaps

³⁰⁴ Md Johirul Islam, "Does Hunger Affect Violent Crime? A Cross-Country Study of Developing Nations," *SSRN Electronic Journal*, 2022, <https://doi.org/10.2139/ssrn.4033213>.

³⁰⁵ Anissia Klimova, "Low-Income Groups and the Effects of Climate Change on Malnutrition and Food Security," in *Social Connectedness Fellowship 2017* (Samuel Centre for Social Connectedness, 2017), 24, <https://www.socialconnectedness.org/wp-content/uploads/2019/10/Low-Income-Groups-and-the-Effects-of-Climate-Change-on-Malnutrition-and-Food-Security.pdf>.

³⁰⁶ Jonathan Randel Caughron, "An Examination of Food Insecurity and Its Impact on Violent Crime in American Communities" (PhD Dissertation, South Carolina, Clemson University, 2016), https://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=3571&context=all_theses.

feelings of inequity, may prompt *fundamentalist ideology* in both women and men (related to food customs), as well as *avoid abuse by rebel/government forces* (women) and/or *exposure to violence/repression* (men) (Linkage 2.1.4.K).

The research related to *anti-state grievances*, *grievances between societal groups*, and *interstate tensions* is somewhat contested, though more sophisticated and confident findings are published each year supporting the hypothesis that food insecurity may trigger tensions and violence. O’Loughlin and colleagues offer two useful ways to group research findings for understanding the result: (1) one group of research that shows a complex, though positive, relationship between (food) scarcity and grievances/tensions mediated by changes in the economy, and (2) a second body of research that finds resource-based violence and conflict results when place-based power relationships distort the management of food resources.³⁰⁷ In the first group, for instance, Homer-Dixon as well as Koubi et al. postulate that climate change will impact volatility of rainfall and temperature, and therefore also agriculture productivity, resulting in stunted economic growth, which is the ultimate source of political instability and potential trigger for tensions and conflicts (a pathway to *anti-state grievances*) (Linkage 2.1.4.L).³⁰⁸ By way of example, climate change may reduce food production, leading to mass flight of the rich and intellectual classes, which could eviscerate universities, institutions, and courts, and cripple the economy, leading to political instability.³⁰⁹ This pattern of food insecurity, mass elite exit, and economic insecurity is common in many Latin American countries,

³⁰⁷ John O’Loughlin et al., “Climate Variability and Conflict Risk in East Africa, 1990–2009,” *Proceedings of the National Academy of Sciences* 109, no. 45 (November 6, 2012): 18344–49, <https://doi.org/10.1073/pnas.1205130109>.

³⁰⁸ Vally Koubi et al., “Climate Variability, Economic Growth, and Civil Conflict,” *Journal of Peace Research* 49, no. 1 (January 31, 2012): 113–27, <https://doi.org/10.1177/0022343311427173>; Thomas F. Homer-Dixon, *Environment, Scarcity, and Violence* (Princeton University Press, 2010), 52, <http://muse.jhu.edu/book/29798>.

³⁰⁹ Homer-Dixon, *Environment, Scarcity, and Violence*, 80.

but especially Honduras, El Salvador, and Guatemala, with levels of violence and civil conflicts on the rise in recent years.³¹⁰ Though no research is available on gendered motivations, it may be reasonable to suggest feelings of anger and frustration over inequities and possible price gouging would lead to motivations to engage in *anti-state grievances* such as *avoid abuse* (typically women), as well as *revenge* and *exposure to violence/repression* (typically men), though this hypothesis requires testing. [Noting in particular that more research is required to align with gendered patterns of *anti-state grievances* regarding food insecurity as discussed in section 1.2.3.3].

Economically focused research by Koren and Bagozzi utilizes the FAO's concepts of *food access* and *food availability* to talk about tensions over food insecurity that may lead to *grievances between societal groups* (Linkage 2.1.4.M, Linkage 2.1.4.N):

From the demand side, violent conflict is most likely to revolve primarily around access to food sources. When food insecurity produces higher demands for food, these demands will directly compel groups and individuals to seek out and fight over existing food resources, rather than leading these actors to pursue and fight over geographic areas that lack any (or have very little) agricultural resources. Thus, access to croplands and food is a necessary condition for food insecurity-induced conflict. ... From the supply side, and within those areas that do already offer access to agriculture and/or food, conflict is most likely to occur in regions that offer lower levels of food availability, or insufficient food supplies. This is because lower food availability (or supplies) in these contexts directly implies higher levels of resource scarcity, which can engender social grievances, and ultimately, social and political conflict.³¹¹

Additionally, this research suggests that issues with *food access* and *food availability* may spill over into *interstate tensions* as warring factions seize land in order to support

³¹⁰ Mike Davis, *Late Victorian Holocausts: El Niño Famines and the Making of the Third World* (Verso Books, 2002); Brian Fagan, *Floods, Famines, and Emperors* (Basic Books, 2017), <https://www.basicbooks.com/titles/brian-fagan/floods-famines-and-emperors/9780786727681/>.

³¹¹ Ore Koren and Benjamin E. Bagozzi, "From Global to Local, Food Insecurity Is Associated with Contemporary Armed Conflicts," *Food Security* 8, no. 5 (September 15, 2016): 999–1010, <https://doi.org/10.1007/s12571-016-0610-x>.

their troops by foraging and pillaging.³¹² The existential threat food scarcity poses may suggest motivations such as *increase survival* among women and *concern over personal security* among men, though research on gendered patterns is required.

Staying with the topic of how food scarcity mediated by the economy can lead to tensions and violence, there is a growing body of research that shows possible pathways to *grievances between societal groups* and *interstate tensions*. For instance, Ahn et al. have found that in Liberia, owners of productive agricultural land were likely to experience land appropriation by others, resulting in increased conflict. In households where men were displaced by conflict or migration, women would have to engage in active defense of their land.³¹³ These findings suggest that the *increase survival* and *personal security* motivations may play into conflict and violence between groups (Linkage 2.1.4.O). Koubi and Bagozzi find that only in weak states lacking democratic systems (such as constraints on the executive, separations of power, strong property rights, and rule of law) is food scarcity likely to lead to armed (internal or interstate) violence and conflict (Linkage 2.1.4.P).³¹⁴ Similarly, Shaffer finds that adequate support systems and good governance tend to increase the likelihood of sharing limited food resources and distributed reserves between groups, and conversely, that institutional failures may leave vulnerable populations feeling as though their only recourse to achieving *Food Security* is violence.³¹⁵ Such risks may increase when combined with

³¹² Koren and Bagozzi, “From Global to Local, Food Insecurity Is Associated with Contemporary Armed Conflicts.”

³¹³ Jaehyun Ahn et al., “Case Studies of Female-Headed Farms and Households in Liberia: A Comparative Analysis of Grand Bassa, Lofa, and Nimba Counties,” *The Journal of Agricultural Education and Extension* 26, no. 1 (January 1, 2020): 19–35, <https://doi.org/10.1080/1389224X.2019.1693407>.

³¹⁴ Koubi et al., “Climate Variability, Economic Growth, and Civil Conflict.”

³¹⁵ L. Jen Shaffer, “An Anthropological Perspective on the Climate Change and Violence Relationship,” *Current Climate Change Reports* 3, no. 4 (October 17, 2017): 226, <https://doi.org/10.1007/s40641-017-0076-8>.

existing tensions between various identities or alliances.³¹⁶ These are just two possible pathways for climate-caused food scarcity to drive economic strain which ultimately causes political instability that could lead to *anti-state grievances*, *grievances between societal groups*, or *interstate tensions*. Given the economic roots of this theoretical frame, when considering involvement in any of these forms of violence, motivations such as *increase survival* may hypothetically animate women, while men may be hypothetically motivated by *pull of networks* or concern over *personal security*, though research on gender differences is lacking in this area.

Using political ecology, the second body of research suggested by O’Loughlin and colleagues focuses on place-based power relationships that distort the management of food resources, resulting in resource-based violence and conflicts.³¹⁷ Research by Nyantakyi-Frimpong shows both *anti-state grievances* and *grievances between societal groups*. While peasant agriculture systems in Northern Ghana are able to cope with climate variability, external factors such as land grabbing, neoliberal economic development, and the adoption of Green Revolution technologies in farm regions has created a landless peasant class which may see conflict and violence with other groups or the government as their only recourse to achieving land (and therefore food) security (Linkage 2.1.4.Q).³¹⁸ Notably, Nyantakyi-Frimpong finds that some of these conflicts may take place at the household level between women and men.³¹⁹ In such circumstances, motivations such as *increase survival* (typically women), as well as *pull of networks* and

³¹⁶ Shaffer, “An Anthropological Perspective on the Climate Change and Violence Relationship,” 226.

³¹⁷ O’Loughlin et al., “Climate Variability and Conflict Risk in East Africa, 1990–2009.”

³¹⁸ Hanson Nyantakyi-Frimpong, “Hungry Farmers: A Political Ecology of Agriculture and Food Security in Northern Ghana” (London, Ontario, Canada, The University of Western Ontario, 2014), <https://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=3708&context=etd>.

³¹⁹ Nyantakyi-Frimpong, “Hungry Farmers: A Political Ecology of Agriculture and Food Security in Northern Ghana.”

concern over personal security (typically men) may prompt people to engage in conflict and violence, though this warrants further study to determine if there are gender differences in such cases.

In another example that includes both *anti-state grievances* and *grievances between societal groups*, Julia and White explore the gendered nature of *anti-state grievances* in oil palm (a cash crop) expansion in West Kalimantan, Indonesia.³²⁰ As oil plantations replace local food products, local *Food Security* is jeopardized. Concurrently, land formerly cultivated under customary tenure undergoes a rapid and radical transformation of social, economic, and political structures as some farmers become rich and others experience deep impoverishment (Linkage 2.1.4.R). Tensions between groups, between farmers and the government/corporations form, and are further intensified by the mismatch between what the plantation organizations promise and what they deliver by way of benefits to giving up their land. Consequently, conflicts have broken out between the community and the government/military, as well as between the community and the oil plantation organizations. Gender-based allocation of land tenure rights in an already patriarchal society have resulted in further exclusion of women from taking part in oil plantation benefits. As such, women have defied gender norms to participate in (and in some cases, organize) protests; yet they have been largely prevented from participating in discussions and negotiations with the oil palm corporations, further entrenching gender inequalities.³²¹ This is an important omission since, as Shaffer argues,

Women are often more willing to seek non-violent and innovative solutions in resource scarce situations to ensure that their families are

³²⁰ Julia and Ben White, “Gendered Experiences of Dispossession: Oil Palm Expansion in a Dayak Hibun Community in West Kalimantan,” *The Journal of Peasant Studies* 39, no. 3–4 (May 28, 2012): 995–1016, <https://doi.org/10.1080/03066150.2012.676544>.

³²¹ Julia and White, “Gendered Experiences of Dispossession.”

prepared for climate disasters and recover afterward. And while men may take more risks, they are also more willing to cooperate with people they do not know well under stressful conditions. Increasing women's participation in climate adaptation and mitigation decision-making could lead to reduced violence in response to climate changes.³²²

From this FPEcol perspective that centres discussions of food insecurity-caused violence and conflict on shifting power relations, it may be useful to test if motivations animating women to participate in protests or political violence could include *greater opportunities* and *avoid abuse*, or if men are motivated by the *exposure to violence/repression*, *pull of networks*, or *revenge* when contemplating participation in protests, conflicts with other groups, or interstate armed conflict (though more research is required).

The preceding discussion outlined how climate change may impact the *food access*, *food availability*, *food utilization*, and *food stability*, and that people may experience anger, frustration, or a sense of injustice, especially related to uncertainty and worry over short-term *Food Security*; inadequate quality of food; insufficient quantities of food; or social unacceptability of food. Such negative emotions may be channeled into increased levels of *crime/violence/extremism*. Additionally, when combined with economic uncertainty or changes in place-based power relationships, food scarcity may lead to increased levels of *anti-state grievances*, *grievances between societal groups*, or even *interstate tensions*. Though some studies indicate varying types of gendered motivations and involvement in these types of *National/International Security* threats (for instance, women may be subjected to greater injustices due to changes in power balances, and may defy gender norms in order to protest such treatment), more research is required on most subjects to better define gender's impact on threats related to food insecurity.

³²² Shaffer, "An Anthropological Perspective on the Climate Change and Violence Relationship"; Irene Dankelman, ed., "Climate Change, Human Security and Gender," in *Gender and Climate Change: An Introduction* (London, Sterling, VA: Earthscan: Publishing for a Sustainable Future, 2010), 68.

Despite these findings, there are some rays of hope. For instance, climate change is expected to open new regions to agricultural production (especially in places like Canada and Russia), which may allow for increases in food yields, thereby offsetting some of the losses in other regions and potentially staving off scarcity-based conflicts, though more research on this subject is required.³²³ Additionally, as already mentioned, tensions over scarce resources such as land, water, or food supplies are often opportunities to engage in greater cooperation and sharing, leading to greater levels of peace.

³²³ Nils Petter Gleditsch, "Whither the Weather? Climate Change and Conflict," *Journal of Peace Research* 49, no. 1 (January 31, 2012): 3–9, <https://doi.org/10.1177/0022343311431288>.

2.1.4.3. Summary of Gender-Climate-Security and Food Security

A summary visualizing Gender-Climate-Security connections to *Food Security* can be found in Figure 12. A list of Diagnostic Questions in Table 52 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

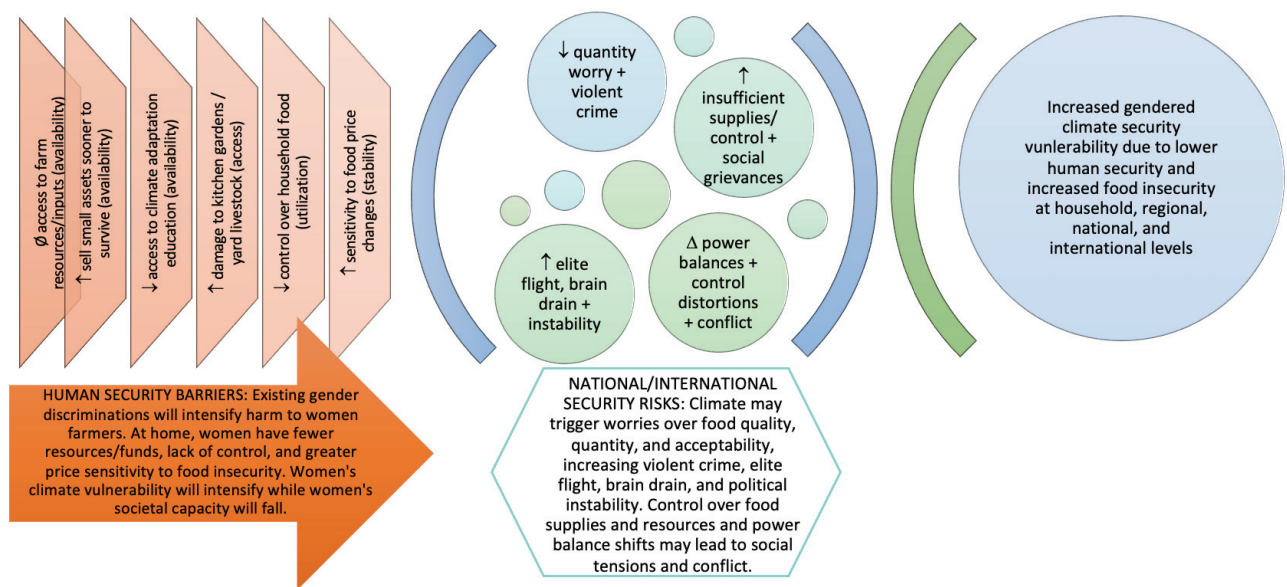


Figure 12. Gendered Climate Security Vulnerabilities in Food Security.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Food Insecurity.

2.1.5. Recent Shocks

Table 17. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Recent Shocks.

<p>Dominant Approach: Takes into consideration the number of people impacted by disasters within the past 3 years.³²⁴</p>
<p>FPEcon/FPEcol Approach: Simply counting the number of people impacted by recent disasters doesn't allow for a nuanced view of the different ways a disaster may impact individuals based multiple intersecting aspects of their identities, such as class, race, ethnicity, religion, or disability. Furthermore, this approach ignores how people use the experience of recent shocks to assess and prepare for future risks, often using knowledge based on their gendered experiences. According to feminist scholar Enarson, much of women's ability to cope with shocks is determined even before the shock occurs due to the gendered nature of socio-economic roles.³²⁵ By ignoring gender or essentializing women, conventional approaches to disaster risk reduction (DRR) often reinforce and too frequently exacerbate pre-existing unequal gender relations. In particular, Kimber and Steele argue, "perception of women as a socially constructed vulnerable group, as dependent, weak and subordinate, ironically often isolates women from planning and further leads to women's exclusion from decision-making processes."³²⁶</p> <p>The following discussion will therefore focus on the ways in which existing gendered structures and institutions inform responses to recent shocks, and how those gendered responses impact individual and collective <i>Coping Capacity</i> in the face of subsequent climate shocks.</p>

Brief comparison of dominant and feminist definitions of Recent Shocks.

³²⁴ Remmits, Dick, and Rademaker, "Climate Security Assessment," 76.

³²⁵ Elaine Enarson, "Gender and Natural Disasters" (InFocus Programme on Crisis Response and Reconstruction, Geneva, ILO: Recovery and Reconstruction Department, 2000), viii, http://www.ilo.int/wcmsp5/groups/public/---ed_emp/---emp_ent/---ifp_crisis/documents/publication/wcms_116391.pdf.

³²⁶ Leah R. Kimber and Jackie F. Steele, "Feminist Advocacy on International Agreements for Disaster Risk Reduction: From Yokohama to Sendai," *International Journal of Disaster Risk Reduction* 64 (October 2021), <https://doi.org/10.1016/j.ijdr.2021.102457>.

Table 18. Short Overview of the Recent Shocks Gender-Climate-Security Linkages.

Human Security ³²⁷	Gender Equality-Security Mechanisms
Linkage 2.1.5.A. Climate shock occurs → women's risk perception at baseline may be higher than men's → gendered norms inform women's and men's risk perception of what's harmful differently in comparison with other concerns → women and men may each eschew preparatory activities, but for different reasons (Wachinger's <i>Reason 1</i> for not taking adaptive action)	<i>Societal capacity</i>
Linkage 2.1.5.B. Climate shock occurs → gendered norms may inform women's and men's risk perceptions of what's harmful differently (e.g. men: crop/livestock loss; women: household food shortage) → gendered power imbalances may give men the means and agency to take preparatory activities, but prevent women from doing the same (Wachinger's <i>Reason 3</i> for not taking adaptive action)	<i>Societal capacity</i>
Linkage 2.1.5.C. Individuals are exposed to repeat climate-related disasters → those with additional demographic vulnerabilities (such as gender inequality) experience negative health and economic outcomes more acutely → may increase likelihood of poorer outcomes in subsequent disasters (often women, especially those from single/divorced/widowed and/or low-income households)	<i>Societal capacity</i>
Linkage 2.1.5.D. A climate-related disaster may leave many injured or ill → women often lack affordable or culturally acceptable access to medical care following disasters → women may experience long-term health impacts (bodily depletion) → women may experience lower <i>Coping Capacity</i> to future shocks	<i>Societal capacity</i>
Linkage 2.1.5.E. Climate disasters will strain emotional/psychological resources (self-esteem, basic beliefs, relationships) → <i>repeat</i> climate shocks (especially with relocation) are more likely to trigger mental health crises and PTSD → women's unpaid care burdens may amplify feelings	<i>Societal capacity</i>

³²⁷ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*').

Human Security³²⁷	Gender Equality-Security Mechanisms
of anxiety, desperation, helplessness → women may severely diminish psychological resources and may result in women demonstrating increased suicidality risks	
Linkage 2.1.5.F. Climate disasters may reduce women's socioeconomic status (especially with relocation) → women may face challenges competing for emergency aid → ability to manage subsequent crises may be diminished	<i>Societal capacity</i>
Linkage 2.1.5.G. Climate disasters often increase women's likelihood of experiencing SGBV → SGBV intensifies the psychological/physical stress of disasters → women's recovery is slowed/stunted → women may possess lower <i>Coping Capacity</i> in future disasters	<i>Societal capacity</i>
Linkage 2.1.5.H. Tyranny of the urgent may reduce focus on gender equality in climate-related humanitarian assistance/disaster relief (HA/DR) responses → women's unpaid care burdens may increase → women are rarely consulted or given leadership in DRR projects → gender inequalities may increase (rather than being transformed)	<i>Societal capacity</i>

National/International Security ³²⁸	Pathway	Motivational Mechanisms
Linkage 2.1.5.I. A large-scale climate disaster strikes → systems with weak governance are likely to experience disaster more acutely (compared to stable systems with fair elections and media) → (property) crime rates may increase due to poor response to recent shocks	Crime/violence/extremism	[Requires research] Women more likely to be involved in property (versus violent) crime [∅]
Linkage 2.1.5.J. A climate shock hits a region → communities with high rates of blight may recover more slowly → rates of crime (burglary, assault, etc.) may increase more than in less fragile states	Crime/violence/extremism	[Requires research] Women more likely to be involved in burglary/property (versus violent) crime; Men more likely involved in assaults [∅]
Linkage 2.1.5.K. Repeat flooding or extreme weather events may damage maritime fish stocks and infrastructure → local social, political, and economic systems may suffer → incentives for criminal behaviour (illegal fishing, human trafficking/illegal migration, drug trafficking, arms smuggling) may increase in degraded marine environments	Crime/violence/extremism	[Requires research] <i>Greater opportunities (typically women)[∅] and pull of networks (typically men)[∅]</i>
Linkage 2.1.5.L. Natural (climate-caused) disasters may expose institutional weaknesses/corruption → people's basic needs may not be met (food, water, medical care, electricity) → the public may blame government for such failures → protests may develop and grievances may be used as recruitment tools	Anti-state grievance	[Requires research] <i>Increase survival (typically women),[∅] pull of networks, and personal security (typically men)[∅]</i>

³²⁸ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security ³²⁸	Pathway	Motivational Mechanisms
Linkage 2.1.5.M. Climate-related disasters trigger the distribution of humanitarian assistance → discrimination and favouritism may exacerbate or create social cleavages → may trigger protests or intrastate tensions	Anti-state grievances / Grievances between societal groups	[Requires research] <i>Increase survival, avoid abuse (typically women),[∅] exposure to violence/repression, and pull of networks (typically men)[∅]</i>
Linkage 2.1.5.N. A recent climate disaster may increase expectations of future disasters → some climate disasters can be predicted to advantage some and disadvantage others → expected beneficiaries may purposefully shift power balances ahead of disasters → may trigger interstate conflicts	Grievances between societal groups	[Requires research] <i>Increase survival (typically women)[∅] and personal security or revenge (typically men)[∅]</i>

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with a §; those with no research with ∅. For a full explanation of each Linkage, see sections 2.1.5.1 and 2.1.5.2.

2.1.5.1. Recent Shocks and Human Security

The scholars behind the HCSS framework for climate security certainly had good reason to include recent shocks as one of the factors that plays a powerful role within the *(Gendered) Climate-Security Lifecycle*.³²⁹ In many ways, GCS-Factor *Recent Shocks* is a meta-category for much of what is described throughout this proposed framework.

Looking first at GCS-Factor *Recent Shocks* in terms of *Human Security Gender-Climate-Security Linkages*, the following discussion will focus on how the experience of recent

³²⁹ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

climate-related shocks impacts four important factors that determine *Coping Capacity*: (1) recent shocks play a role in forming an individual's risk perception and subsequently their willingness to engage in adaptive and preparatory activities; (2) recent shocks diminish *Coping Capacity* in response to future shocks by destroying an individual's/household's assets; (3) recent shocks can severely hamper mental health, thereby lowering an individual's internal reserves for addressing future risks; and (4) responses to recent shocks can have a substantial impact on existing gender inequalities, often intensifying and further entrenching inequalities that make women more vulnerable in the first place. These four factors are highly gendered, and as such are a good way to frame the GCS-Factor *Recent Shocks* climate-security linkages, all of which fit into the *Gender Equality-Security Mechanism of societal capacity*.

First, risk perception, which is often informed by recent shocks, is central to understanding what actions individuals and communities are willing to take to mitigate and adapt to climate change. There are two main ways to approach the concept of risk perception. Taking a hazards approach to understanding risk perception involves the simple idea that people perceive risk based on the type of hazard and its perceived frequency and severity.³³⁰ A socio-cultural approach, on the other hand, suggests risk perception is based on cultural and social norms (such as gendered norms) about what is considered harmful, combined with an individual's sense of harm tolerance.³³¹ Using a socio-cultural approach, research by Wachinger et al. shows that direct experience of a

³³⁰ Jeanne X. Kasperson and Roger E. Kasperson, *The Social Contours of Risk* (Routledge, 2005).

³³¹ James McCarthy et al., "Socio-Cultural Dimensions of Climate Change: Charting the Terrain," *GeoJournal* 79, no. 6 (17 2014): 665–75, <https://doi.org/10.1007/s10708-014-9546-x>; Gisela Wachinger et al., "The Risk Perception Paradox-Implications for Governance and Communication of Natural Hazards: The Risk Perception Paradox," *Risk Analysis* 33, no. 6 (June 2013): 1049–65, <https://doi.org/10.1111/j.1539-6924.2012.01942.x>.

climate-related event (such as a flood) can demonstrate to the individual the potential for future risk, thereby leading to a higher risk perception and possibly to adaptive or precautionary actions to mitigate future threats.³³² However, a higher risk perception doesn't always result in taking preparedness measures. Wachinger and colleagues outline three possible reasons for why victims of an extreme river flood (for instance) may not take adaptive action against future flood risks:³³³

Reason 1: Individuals understand the risk but choose to accept it due to the fact that the perceived benefits of not preparing are outweighed by the negatives of preparing (for instance, living close to the river may appear to outweigh the potential negative impacts of leaving).

Reason 2: Individuals understand the risk but do not realize any agency for their own actions; the responsibility for action is transferred to someone else.

Reason 3: Individuals understand the risk but have few resources to affect the situation.

A further three mediating factors should be noted in understanding how recent shocks impact an individual's risk perception of future shocks. First, Wachinger et al. suggest that risk perception is highly impacted by level of trust in authorities and experts, as well as personal ability.³³⁴ Second, low-severity or seldom-experienced events may result in a false sense of security or a misjudgement of individual's ability to cope.³³⁵ Third, according to reinforcement learning theory, *recent* events generally have more

³³² Wachinger et al., "The Risk Perception Paradox-Implications for Governance and Communication of Natural Hazards."

³³³ Wachinger et al., "The Risk Perception Paradox-Implications for Governance and Communication of Natural Hazards," 6.

³³⁴ Wachinger et al., "The Risk Perception Paradox-Implications for Governance and Communication of Natural Hazards."

³³⁵ Wachinger et al., "The Risk Perception Paradox-Implications for Governance and Communication of Natural Hazards."

weight in determining a person's risk perception, while *distant* events tend to fade in salience over time.³³⁶

Because rare events have a smaller probability of having occurred recently, they tend (on average) to have a smaller impact on the decision than their objective likelihood of occurrence would warrant. When they do occur, however, they have a much larger impact on related decisions than warranted by their probability. This makes learning and decisions from experience more volatile across respondents and past outcome histories than learning and decisions from description.³³⁷

In recent years, there has been an increase in interest in the gendered nature of climate risk assessments, particularly related to Wachinger's *Reason 3*. Several researchers find that women tend to have a higher level of concern that more climate crises will occur in the future.³³⁸ Bee takes an FPEcol approach by arguing that risk perception (and therefore adaptation and the capacity to adapt) is shaped by and inseparable from the complex relationship between social relations, material practices, and lived realities seen through the dynamic relationship between the mundane activities of women, their environmental knowledge, and their risk perceptions.³³⁹ Bee's research illuminates how women's,

³³⁶ Elke U. Weber, Sharoni Shafir, and Ann-Renee Blais, "Predicting Risk Sensitivity in Humans and Lower Animals: Risk as Variance or Coefficient of Variation," *Psychological Review* 111, no. 2 (2004): 430–45, <https://doi.org/10.1037/0033-295X.111.2.430>.

³³⁷ Elke U. Weber, "What Shapes Perceptions of Climate Change?," *WIREs Climate Change* 1, no. 3 (2010): 332–42, <https://doi.org/10.1002/wcc.41>.

³³⁸ Minerva Campos, Michael K. McCall, and Marc González-Puente, "Land-Users' Perceptions and Adaptations to Climate Change in Mexico and Spain: Commonalities across Cultural and Geographical Contexts," *Regional Environmental Change* 14, no. 2 (April 2014): 811–23, <https://doi.org/10.1007/s10113-013-0542-3>; Aaron M. McCright, "The Effects of Gender on Climate Change Knowledge and Concern in the American Public," *Population and Environment* 32, no. 1 (September 2010): 66–87, <https://doi.org/10.1007/s11111-010-0113-1>; Leila Scannell and Robert Gifford, "Personally Relevant Climate Change: The Role of Place Attachment and Local Versus Global Message Framing in Engagement," *Environment and Behavior* 45, no. 1 (January 2013): 60–85, <https://doi.org/10.1177/0013916511421196>; Päivi Lujala, Haakon Lein, and Jan Ketil Rød, "Climate Change, Natural Hazards, and Risk Perception: The Role of Proximity and Personal Experience," *Local Environment* 20, no. 4 (April 3, 2015): 489–509, <https://doi.org/10.1080/13549839.2014.887666>.

³³⁹ Beth A. Bee, "Power, Perception, and Adaptation: Exploring Gender and Social–Environmental Risk Perception in Northern Guanajuato, Mexico," *Geoforum* 69 (February 1, 2016): 71–80, <https://doi.org/10.1016/j.geoforum.2015.12.006>.

institutional and socio-political context, such as the changing context of water management and the gendered relations of power, shape women's understandings of climatic change and variability ... through their daily tasks of providing for the care and maintenance of their families and their communities, women acquire knowledge and skills about social–environmental change that have important implications for adaptation and risk-reduction policy and practice.³⁴⁰

For example, women agriculture workers in Guanajuato, Mexico remember (a form of knowledge acquisition) climatic changes based on the performance of their gendered activities, such as washing in the river or crossing the river.³⁴¹ Furthermore, ranking of climate risks against other concerns is impacted by attitudes and circumstances of the local context, such as the price of consumables, lack of jobs, local drug and alcohol addiction, migration of family members, and so on, much of which is also gendered (Linkage 2.1.5.A).³⁴² Similar results were obtained in a survey on the perceptions of future climate change risks in Tanzania, which found gendered norms played a major role in women's and men's rankings of risks to crops and livestock (perceived as a greater risk by men) versus household food shortages (a larger concern for women).³⁴³

Importantly, although recent shocks may increase women's level of risk perception, women do not always possess the power or resources necessary to take preparatory steps to protect against future threats. Bee suggests that highly gendered political and institutional arrangements play important roles in climate risk perception. For instance, men tend to have the power on local water/resource management committees; women are often excluded from legally controlling resources and land; and men typically control the prioritization of people's needs—all factors that significantly

³⁴⁰ Bee, "Power, Perception, and Adaptation."

³⁴¹ Bee, "Power, Perception, and Adaptation."

³⁴² Bee, "Power, Perception, and Adaptation."

³⁴³ O. Swai, Jonathan Mbwambo, and F. Magayane, "Gender and Perception on Climate Change in Bahi and Kondoa Districts, Dodoma Region, Tanzania," *Journal of African Studies and Development* 4, no. 9 (January 1, 2012): 218–31.

impact one's ability to act on risk perceptions (Linkage 2.1.5.B).³⁴⁴ Several subsequent GCS-Factors in this study will explore in depth how gender inequities in *Poverty* levels further challenge women's abilities to act upon heightened risk perceptions caused by *Recent Shocks*.

This leads to the second way in which recent shocks can have gendered impacts on *Coping Capacity*, and that is by diminishing assets and reserves (including health reserves) that could be used to cope with future shocks. In a study of the effects of cumulative disaster exposure on *Coping Capacity*, Mohammad found that exposure to recent disasters alone was not sufficient to determine negative health and economic outcomes in subsequent disasters, but that repeat exposure *plus* other demographic vulnerabilities (such as gender) and/or existing socioeconomic conditions together increased the likelihood of poor outcomes in subsequent disasters (Linkage 2.1.5.C).³⁴⁵ For instance, a hurricane may severely damage a family's shelter, water well, livestock, crops, and vehicle, and with few to no resources for repair and replacement, such families will find themselves increasingly vulnerable to repeat disasters. In a study of gender and disasters, Rezwana found that poor inhabitants already live in precarious conditions that are more quickly and thoroughly destroyed by such storms.³⁴⁶

Women in particular were prone to poorer outcomes, especially if they were from single/divorced/widowed and/or low-income households, according to Mohammad.³⁴⁷

³⁴⁴ Bee, "Power, Perception, and Adaptation."

³⁴⁵ Lubna Mohammad, "Cumulative Disaster Exposure and Coping Capacity of Women and Their Children in Southeast Louisiana" (Master's Thesis, Fort Collins, Colorado, Colorado State University, 2017), https://mountainscholar.org/bitstream/handle/10217/183995/Mohammad_colostate_0053N_14367.pdf.

³⁴⁶ Nahid Rezwana, "Disasters and Access to Healthcare in the Coastal Region of Bangladesh: A Gendered Analysis" (PhD Dissertation, Durham University, 2016), 109, http://etheses.dur.ac.uk/11432/1/PhD_Thesis_-_Nahid_Rezwana.pdf?DDD14+.

³⁴⁷ Mohammad, "Cumulative Disaster Exposure and Coping Capacity of Women and Their Children in Southeast Louisiana."

Moreover, Ashraf and Azad suggest that intersecting inequalities based on class, race, ethnicity, religion, or disability places different groups of women differently at risk, and that without intervention, these risks compound upon one another, whereby women may become increasingly affected by repeat, intensified climate disasters.³⁴⁸ Mohammad further found that:

The most vulnerable women and children also experienced severe, direct and secondary disaster induced problems including: long and unstable displacements; stigma during displacement; displacement to shelters; unsanitary shelters and hotels and/or cramped housing; loss of home, social support networks, and jobs, often simultaneously or in short order; unsafe living conditions; and uncertainty about disaster impacts to impeded coping and recovery.³⁴⁹

Households with higher incomes, greater social support systems, and more material resources generally tend to fair better following multiple disasters.³⁵⁰ Given that Mohammad's study was based in a developed country (USA), participants likely benefited from higher economic/asset security than people (especially women) in developing countries, suggesting that the effects of multiple disasters on women in the least-developed regions would be even more profound.

Physical health reserves, a type of resource that is important for *Coping Capacity*, can also be significantly diminished as a result of previous disasters. The issue of *Life Expectancy* and bodily depletion will be discussed at length in a future GCS-Factor of this study, but it is important to note here that multiple disasters can greatly reduce a person's physical capacity to deal with subsequent crises. For instance, frequently,

³⁴⁸ Mirza Ali Ashraf and Md Abul Kalam Azad, "Gender Issues in Disaster: Understanding the Relationships of Vulnerability, Preparedness and Capacity," *Environment and Ecology Research* 3, no. 5 (September 2015): 136–42, <https://doi.org/10.13189/eer.2015.030504>.

³⁴⁹ Mohammad, "Cumulative Disaster Exposure and Coping Capacity of Women and Their Children in Southeast Louisiana," 135.

³⁵⁰ Mohammad, "Cumulative Disaster Exposure and Coping Capacity of Women and Their Children in Southeast Louisiana."

cultural and social norms will exclude women from spaces where they could receive treatment and care for disaster-related injuries or illnesses, and as a result, men and boys often receive care at higher rates than women.³⁵¹ Importantly, as Shreve and numerous other scholars have found, the effects of recent shocks on women’s and girls’ access to sexual and reproductive health resources are frequently disrupted during crises, which “places women at greater risk of infections, premature births, malnutrition, unwanted pregnancies, and pregnancy losses during disasters.”³⁵² Without adequate treatment of injuries and health concerns following a climate disaster, women may especially have reduced bodily health for coping with future climate disasters (Linkage 2.1.5.D).

A third pathway by which recent shocks impact *Coping Capacity* is the mental health strain climate-caused disasters may trigger. Natural disasters such as those caused by climate change in and of themselves can be significant stressors for all those who experience them. Each individual will come to a shock event with a set of psychological resources, including self-esteem, socioeconomic status/position, employment, basic beliefs, relationships—the circumstances of a natural disaster will act as a stressor that threatens each of these resources.³⁵³ Survivors of climate disasters (whether slow-onset or acute) can experience a range of mental health consequences, including “shock, disbelief, anxiety, sleep disturbances and impaired personal relationships. ... alcoholism,

³⁵¹ Rezwana, “Disasters and Access to Healthcare in the Coastal Region of Bangladesh: A Gendered Analysis,” 144.

³⁵² Cheney Shreve, “Economic Efficiency or Gender Equality: Conceptualizing an Equitable ‘Social Framing’ for Economic Evaluations to Support Gender Equality in Disaster Risk- and Environmental-Management Decision-Making,” *Resources* 5, no. 3 (July 13, 2016): 25, <https://doi.org/10.3390/resources5030025>.

³⁵³ Raymond E. Wiest, Jane S.P. Mocellin, and D. Thandiwe Motsisi, “The Needs of Women in Disasters and Emergencies.” (Winnipeg, MB, Canada: Disaster Research Institute, The University of Manitoba, 1994), 22, https://www.jumpjet.info/Emergency-Preparedness/Protecting-Dependents/The_Needs_of_Women_in_Disasters_and_Emergencies.pdf.

depression, child and spouse abuse, psychosomatic complaints.”³⁵⁴ Post-traumatic stress disorder (PTSD) results from significant acute stressors (armed conflict, rape, criminal activity, etc.) or through longer-lasting stressors, and can trigger recurrent, intrusive memories, sleep disturbances, hypervigilance, aggression, and other mental health challenges.³⁵⁵ Numerous studies have shown that the cumulative effective of multiple traumas is likely to significantly increase rates of mental health stress and PTSD.³⁵⁶

Many of these mental health challenges have been seen to more profoundly impact women. Twigg suggests the following reason for this disparity:

Even in rapid-onset disasters, women are expected to carry out their normal domestic tasks, in addition to dealing with the consequences of the disaster itself. After disasters, their bargaining position in the competition for relief aid and other scarce resources may be weaker: single women and woman-headed households are particularly likely to lose out.³⁵⁷

Looking at how poor women in Bangladesh, India, and Nepal have coped with recent environmental changes (such as increased flooding) in the Ganga river basin, Mitchell et al. show that women suffer great distress following floods, but usually are tasked with the additional burden of caring for affected family members.³⁵⁸ This results in higher levels of anxiety, desperation, helplessness, and lack of sleep compared to men (Linkage

³⁵⁴ Wiest, Mocellin, and Motsisi, “The Needs of Women in Disasters and Emergencies.,” 23.

³⁵⁵ Wiest, Mocellin, and Motsisi, “The Needs of Women in Disasters and Emergencies.,” 22.

³⁵⁶ Belinda Agyapong et al., “Cumulative Trauma from Multiple Natural Disasters Increases Mental Health Burden on Residents of Fort McMurray,” *European Journal of Psychotraumatology* 13, no. 1 (May 17, 2022), <https://doi.org/10.1080/20008198.2022.2059999>; Claudia Catani et al., “Family Violence, War, and Natural Disasters: A Study of the Effect of Extreme Stress on Children’s Mental Health in Sri Lanka,” *BMC Psychiatry* 8, no. 1 (May 2, 2008): 33, <https://doi.org/10.1186/1471-244X-8-33>; Sangram Kishor Patel et al., “A Review of Disasters in Jammu and Kashmir, and Ladakh Region in India,” *International Journal of Population Studies* 6, no. 1 (August 17, 2020): 69–81, <https://doi.org/10.18063/ijps.v6i1.1180>; Nancy J Hauff, “What Are The Relationships Among Cumulative Trauma, Posttraumatic Stress Disorder, Sleep Quality, And Perinatal Outcomes In African American Women?” (Wayne State University, 2015), https://digitalcommons.wayne.edu/cgi/viewcontent.cgi?article=2135&context=oa_dissertations.

³⁵⁷ John Twigg, “Disaster Risk Reduction: Good Practice Review 9” (London, UK: Overseas Development Institute, 2015), 091, <https://odihpn.org/wp-content/uploads/2011/06/GPR-9-web-string-1.pdf>.

³⁵⁸ Tom Mitchell, Thomas Tanner, and Kattie Lussier, “‘We Know What We Need’: South Asian Women Speak out on Climate Change Adaptation,” Monographs and Working Papers (Institute of Development Studies and Action Aid International, November 2007), 10, <https://actionaid.org/publications/2007/we-know-what-we-need-south-asian-women-speak-out-climate-change-adaptation>.

2.1.5.E).³⁵⁹ Similarly, Ethiopia and Mali where women’s pastoralist lives and *Food Security* depend on a healthy environment, climate stressors may adversely impact women’s mental health as they perceive greater risks to their livelihoods.³⁶⁰ Furthermore, relocating as a response to a recent shock often diminishes women’s social safety nets, further hampering their mental health.³⁶¹ Similarly, research by Reifels et al. shows that repeat (but not single) exposure to human-caused events (such as conflicts) or natural disasters increase the risk of suicidal behaviour.³⁶² Women tend to have higher rates of suicide in the general population; this same trend is seen among women following multiple disaster exposures according to Reifels and colleagues.³⁶³

Gender inequalities that arise due to socioeconomic disadvantages, such as persistent poverty and economic marginalization (see sections 3.1.1 and 3.1.6), “may condition maladaptive responses to the occurrence of disaster stress. Consequently, disaster stress, if not efficiently managed, can be manifest in severe psychosocial incapacitation, either short-term or long-term.”³⁶⁴ Socioeconomic marginalization may so diminish an individual’s *Coping Capacity* that they no longer have the psychosocial resources to manage another disaster (Linkage 2.1.5.F). Furthermore, as discussed in the *Healthcare section of this study mentioned*, SGBV tends to increase following natural disasters, which intensifies the psychological and physical stress of such events on

³⁵⁹ Mitchell, Tanner, and Lussier, ““We Know What We Need,”” 10.

³⁶⁰ Abiyot Anbacha and Darley Kjosavik, “Gendered Perspectives of Climatic and Non-Climatic Stressors in Borana, Southern Ethiopia,” *Journal of Arid Environments* 166 (July 2019), <https://doi.org/10.1016/j.jaridenv.2019.02.012>.

³⁶¹ Mitchell, Tanner, and Lussier, ““We Know What We Need,”” 10.

³⁶² Lennart Reifels et al., “Suicidality Risk and (Repeat) Disaster Exposure: Findings From a Nationally Representative Population Survey,” *Psychiatry* 81, no. 2 (May 2018): 158–72, <https://doi.org/10.1080/00332747.2017.1385049>.

³⁶³ Reifels et al., “Suicidality Risk and (Repeat) Disaster Exposure.”

³⁶⁴ Wiest, Mocellin, and Motsisi, “The Needs of Women in Disasters and Emergencies.,” 23.

women, slowing their recovery and diminishing their *Coping Capacity* to face future disasters (Linkage 2.1.5.G).

Finally, in HA/DR or DRR efforts, the tyranny of the urgent often relegates gender equality to a lower priority, with little consideration for how post-disaster development programs may exacerbate and further entrench gender power imbalances (Linkage 2.1.5.H).³⁶⁵ For instance, relief and recovery projects may target heads of households (usually men) with job, training, and recovery assistance, while also expecting that women will contribute significant time and effort to labouring on reconstruction projects (with little or no remuneration).³⁶⁶ Crucially, rarely are women put in positions of leadership in relief and recovery planning (even when organizations profess to have a gender policy for their work) which can embed gender inequalities in DRR efforts.³⁶⁷ In fact, in many cases, women possess, “considerable technical knowledge and skills” that could contribute to DRR efforts, but very often they are not consulted according to Twigg.³⁶⁸

As the preceding discussion has suggested, *Recent Shocks* can have a profound impact on an individual’s or system’s climate *Coping Capacity* due to the ways previous shocks contribute to the formation of risk perception and willingness to engage in adaptive and preparatory activities; destroy important assets; hamper mental health and lower internal reserves; and amplify gender inequalities. In terms of Forsberg and Olsson’s research, these gender disparities have their roots in lack of women’s

³⁶⁵ Maureen Fordham, “Gender, Disaster and Development: The Necessity for Integration,” in *Natural Disaster and Development in a Globalizing World*, ed. Mark Pelling (London ; New York: Routledge, 2003), 57.

³⁶⁶ Twigg, “Disaster Risk Reduction: Good Practice Review 9,” 091.

³⁶⁷ Twigg, “Disaster Risk Reduction: Good Practice Review 9,” 091.

³⁶⁸ Twigg, “Disaster Risk Reduction: Good Practice Review 9,” 092–095.

empowerment, women's networks, and women's political representation. Under such circumstances, it is likely that women's *societal capacity* will decrease under climate stresses, leaving their communities with less *Coping Capacity* for future climate shocks.

The exclusion of women from DRR planning and implementation, therefore, amounts to a significant opportunity missed to engage in gender transformative work. The time immediately following a recent shock often represents a period of temporary social constraint relaxation—an opportune time to engage in the transformation of gender norms that could increase women's self-confidence, skill level, and perhaps even bargaining power—important factors in *Coping Capacity*.³⁶⁹ By including women in gender transformative DRR, systems could better understand different gendered risk perception and willingness to engage in adaptive and preparatory activities and how recent shocks have impacted individual/household assets and mental health in gendered ways. More importantly, by involving women in leadership roles within DRR structures and programs, more could be known of how recent shocks have either reinforced or liberated existing gender inequalities.

2.1.5.2. Recent Shocks and National/International Security

As a type of meta-category in climate security, GCS-Factor *Recent Shocks* encompasses many of the other GCS-Factors described throughout this proposed framework. One lens through which to examine the impact of recent shocks on conflict and violence is through what Magen and Richemond-Barak call the, “fluid, stealth-like ... layered tipping points” (cumulative shocks), often including climate breakdown, that

³⁶⁹ Twigg, “Disaster Risk Reduction: Good Practice Review 9,” 092–095.

can severely weaken systems, making such systems highly susceptible to future shocks.³⁷⁰ Nigeria is one of the examples they offer: uncontrolled urbanization, climate change impacts, demographic pressures, and an oil-based resource curse, combined with religious and tribal tensions, has generated conditions perfect for the incubation of organized crime, terrorism, and insurgencies, and made the country highly vulnerable to future shocks.³⁷¹ As with virtually every GCS-Factor within this proposed framework, when combined, such layered tipping points are often not immediately visible or sequential, but the accumulation of impacts can cause the “crystallization of risks into threats.”³⁷² Therefore, it should come as no surprise that *Recent Shocks* can have significant impacts on all four of the *National/International Security* categories examined here.³⁷³ Rather than provide an in-depth analysis for each type, the following brief discussion will outline some of the general layering and compounding patterns that connect *Recent Shocks* to this to *National/International Security*.

Looking at patterns of *crime/violence/extremism* following recent shocks, several studies show an increase in criminal activity following natural disasters. Examining the effects of disasters in India, Roy finds that crime rates (property crimes in particular) increase following big disasters (measured by number of human deaths), but that

³⁷⁰ Amichai Magen and Daphné Richemond-Barak, “Anticipating Global and Diffuse Risks to Prevent Conflict and Governance Breakdown: Lessons from the EU’s Southern Neighbourhood,” *Democratization* 28, no. 7 (October 3, 2021): 1239–60, <https://doi.org/10.1080/13510347.2021.1940968>.

³⁷¹ Magen and Richemond-Barak, “Anticipating Global and Diffuse Risks to Prevent Conflict and Governance Breakdown.”

³⁷² Magen and Richemond-Barak, “Anticipating Global and Diffuse Risks to Prevent Conflict and Governance Breakdown.”

³⁷³ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

elections, when timed well and with good media coverage, can ameliorate crime rates following disasters.³⁷⁴ [NB: as discussed in section 1.2.3.2, women are more likely to be involved in property (versus violent) crime (Linkage 2.1.5.I), however no research is available to connect gendered property crime rates to recent shocks]. Similarly, Curtis and Curtis find that following Hurricane Katrina in New Orleans, crimes (including assaults and burglaries) occurred more frequently in neighbourhoods lacking a return to normal where the overall condition was characterized by blight and abandonment (Linkage 2.1.5.J).³⁷⁵ [Noting again: as discussed in section 1.2.3.2, men are more likely to be involved in violent crimes such as assaults; women may be more involved in burglaries than they would in violent crime, however research is required to connect gendered violent crime rates to recent shocks].

In the maritime environment, the structure and services of coastal and marine ecosystems are sensitive to the impacts of climate change, and can face disruption due to floods or extreme weather which may reduce fish stocks or damage maritime infrastructure. Given the role these ecosystems play in social, political, and economic systems of numerous states globally, Germond and Mazaris suggest degraded maritime environments become vulnerable environments in which incentives tend to increase for criminal behaviour, such as illegal fishing, human trafficking and illegal migration, drug trafficking, arms smuggling, and so on (Linkage 2.1.5.K).³⁷⁶ Looking at motivations, research could be conducted on whether desires for *greater opportunities* (typically

³⁷⁴ Susmita Roy, “The Impact of Natural Disasters on Violent Crime” (University of Canterbury, 2010), 38.

³⁷⁵ Andrew Curtis and Jacqueline Curtis, “Crime in Urban Post-Disaster Environments: A Methodological Framework from New Orleans,” *Urban Geography* 32, no. 4 (May 16, 2013): 488–510, <https://doi.org/10.2747/0272-3638.32.4.488>.

³⁷⁶ Antonios D. Mazaris and Basil Germond, “Bridging the Gap between Climate Change and Maritime Security: Towards a Comprehensive Framework for Planning,” *Science of The Total Environment* 635 (September 2018): 1076–80, <https://doi.org/10.1016/j.scitotenv.2018.04.136>.

women) or *pull of networks* (typically men) could be at work. Reviewing all types of crime rates following recent shocks is beyond the scope of this study, however given the variety of criminal activities that appear to increase following crises such as climate-caused disasters, it seems reasonable to surmise that both may be involved, depending on the local context and conditions.

Recent shocks also appear to open pathways for increases in *anti-state grievances* as well due to the ways in which governments are expected to assist residents following disasters and crises. Research by Peters on the pathways from disaster to conflict risk suggests that one conduit for the formation of *anti-state grievances* following recent shocks is in response to institutional failures to meet basic needs, such as food, water, medical care, and electricity (Linkage 2.1.5.L) (refer to section 2.2.1.2 for a discussion on Maslowian needs).³⁷⁷ Relatedly, Wiest et al. find that in the case of natural disasters, people often assign blame for poor outcomes to the government and political systems (by contrast, human-caused disasters such as conflict often result in self-blame).³⁷⁸ The connection of these types of grievances to the lack of provision of basic needs suggests repeat disasters may become recruitment tools, though research is needed on whether desire for *increase survival* (typically women) and the *pull of networks* or *personal security* (typically men) may motivate people to be aggrieved in this way. Some interesting research could be conducted on whether *anti-state grievances* that develop due to an unfair distribution of aid following cumulative disasters would motivate women to join protests or rebel groups by a desire to *avoid abuse* and or motivate men because of

³⁷⁷ Laura E. R. Peters, “Disasters as Ambivalent Multipliers: Influencing the Pathways from to Conflict Risk and Peace Through Disaster Risk Reduction,” *Journal of Peacebuilding & Development* 17, no. 2 (March 7, 2022), <https://doi.org/10.1177/15423166221081516>.

³⁷⁸ Wiest, Mocellin, and Motsisi, “The Needs of Women in Disasters and Emergencies.,” 23.

exposure to violence/repression or revenge (Linkage 2.1.5.M). On a positive note, Petrova shows that, though the cumulative long-term socioeconomic health, fluctuation of resources, and communal conflict risks may be negatively impacted by repeated flooding, flooding itself is unlikely to lead to communal violence in the presence of highly trusted local government councils and judicial courts.³⁷⁹

On the subject of *grievances between societal groups*, there is also a growing literature connecting multiple disasters with increases in intragroup tensions. Again, Peters' research is useful: when the distribution of resources following a natural disaster exacerbates existing inequities or creates new ones, political conflict and social cleavages often form—a reality common in poor countries where relief is often distributed by governments and other organizations strategically to retain loyalty of politically-aligned target groups.³⁸⁰ Additionally, uneven distribution of resources following recent shocks may result in severe resource constraints that consequently prompt disadvantaged groups to use violence to satisfy unmet needs. Peters notes, “Disasters can motivate people to strengthen intragroup ties and ‘other,’ exclude, and even place blame on outsiders, particularly where there is a turbulent history of interactions between groups.”³⁸¹ Strengthened cleavages may therefore further destabilize communities, reducing collective and individual *Coping Capacity* when faced with future shocks. Motivations in such situations could be tested: might women be recruited into protest movements due to motivations such as *increase survival* or desires to *avoid abuse*, or might the *pull of networks* and/or *exposure to violence/repression* to attract men (Linkage 2.1.5.M)?

³⁷⁹ Kristina Petrova, “Floods, Communal Conflict and the Role of Local State Institutions in Sub-Saharan Africa,” *Political Geography* 92 (January 2022), <https://doi.org/10.1016/j.polgeo.2021.102511>.

³⁸⁰ Peters, “Disasters as Ambivalent Multipliers.”

³⁸¹ Peters, “Disasters as Ambivalent Multipliers.”

Finally, looking at *interstate tensions*, a growing literature suggests repeat natural disasters and shocks are likely to increase such tensions.³⁸² Reinhardt and Lutmar offer a three-pronged approach to understanding the interlinkages: “disasters are endogenous social phenomena; disasters and conflict are intertwined processes or cycles; and disasters and conflict are co-determined.” One example is that a climate disaster may create resource shortages, triggering deprived populations to engage in violence to gain access to territory with resources.³⁸³ Bas and McLean note that costly conflicts may become more attractive if a population must consider the trade-off between “peaceful starvation and fighting to gain new territory.”³⁸⁴ The authors also go on to find that in the light of bargaining failures among states, the anticipation of future disasters can shift power balances, leading to increased likelihood of conflict in disaster-prone regions:

Anticipated major disasters can contribute to existing sources of power shifts, and the country that is relatively less vulnerable to disasters compared with its adversary and that is expected to become relatively stronger due to environmental shocks may be unable to credibly commit to upholding existing resource allocations when the power balance shifts in its favor. Thus, in areas that experience more frequent and severe disasters with differential effects on states, the likelihood of conflict may be higher, all else being equal.³⁸⁵

As such, recent shocks can play an educational role, informing decision-makers’ understandings of disasters and potentially fueling a sense of anticipated vulnerability or power shift, thereby contributing to a higher likelihood of violence and conflict

³⁸² Philip Nel and Marjolein Righarts, “Natural Disasters and the Risk of Violent Civil Conflict,” *International Studies Quarterly* 52, no. 1 (March 2008): 159–85, <https://doi.org/10.1111/j.1468-2478.2007.00495.x>; Rafael Reuveny, “Economic Growth, Environmental Scarcity, and Conflict,” *Global Environmental Politics* 2, no. 1 (February 1, 2002): 83–110, <https://doi.org/10.1162/152638002317261481>; Gina Yannitell Reinhardt and Carmela Lutmar, “Disaster Diplomacy: The Intricate Links between and Conflict,” *Journal of Peace Research* 59, no. 1 (January 1, 2022): 3–11, <https://doi.org/10.1177/00223433221074791>.

³⁸³ Reinhardt and Lutmar, “Disaster Diplomacy.”

³⁸⁴ Muhammet A. Bas and Elena V. McLean, “Expecting the Unexpected: Risks and Conflict,” *Political Research Quarterly* 74, no. 2 (2021): 421–33, <https://doi.org/10.1177/1065912920911204>.

³⁸⁵ Bas and McLean, “Expecting the Unexpected.”

developing between states (Linkage 2.1.5.N). Under such circumstances, it may be reasonable to test whether recent shocks may fuel motivations such as *increase survival* in women decision-makers and *personal security* or *revenge* concerns in men decision-makers.

This preceding overview of some of the ways recent climate disasters may impact *National/International Security* offer a glimpse into the complex ways cultural, social, political, and economic institutions may interact to increase rates of crime, extremism, tensions, and conflict. Of particular importance is the strength and stability of existing systems, which may be impacted by gender inequalities and whether women are invited into decision-making and peacebuilding spaces. As has been noted in earlier GCS-Factor discussions, however, natural disasters, especially multiple ones, may have a pacifying impact on existing tensions and violence by reducing the relevance of sources of conflict; damaging military materiel or reducing funds available for military expenditures, thereby reducing military readiness; or damaging infrastructure, such as transportation systems, that support military movements.³⁸⁶ Moreover, the experience of recent shocks can be harnessed to increase collaboration and work toward peacebuilding. Peters suggests effective DRR design can work along several pathways to improve social stability. For instance, communities can use post-disaster environmental clean-up, such as clearing of waterways to prevent future floods, to establish cooperative relationships. Working through political channels may motivate political cooperation following shocks to improve local power relations and conditions. For example, borders may be opened to allow the flow of humanitarian aid and displaced people following a natural disaster, or previously opposed groups may band together to hold government leaders accountable

³⁸⁶ Bas and McLean, “Expecting the Unexpected.”

(such as happened in the Democratic Republic of the Congo). Finally, Peters surveyed how effective DRR may work through improved societal relationships between formerly adversarial groups to push for prosocial changes together, such as has taken place in Egypt where groups are encouraged to create safer societies together.³⁸⁷

2.1.5.3. Summary of Gender-Climate-Security and Recent Shocks

A summary visualizing Gender-Climate-Security connections to *Recent Shocks* can be found in Figure 13. A list of Diagnostic Questions in Table 53 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

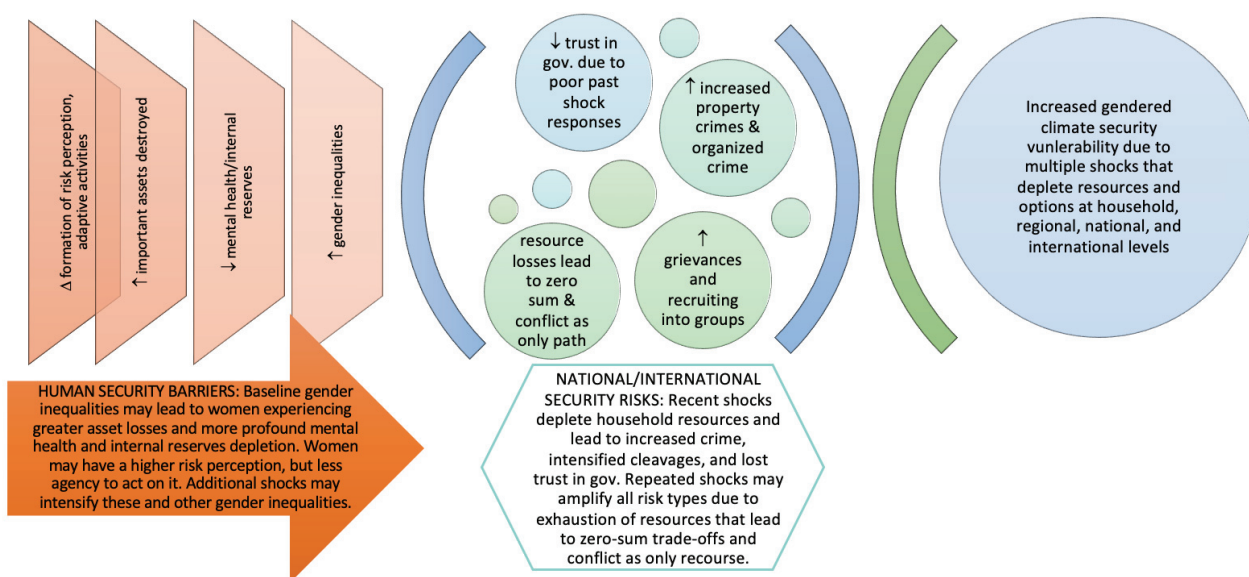


Figure 13. Gendered Climate Security Vulnerabilities in Recent Shocks.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Recent Shocks.

³⁸⁷ Peters, "Disasters as Ambivalent Multipliers."

2.2. (Lack of) Resilience

Unlike GCS-Phase *Coping Capacity* which addresses whether a system's elements-at-risk can efficiently cope with or recover from the physical shocks of climate-caused disasters in the *short- to medium-term*, GCS-Phase *(Lack of) Resilience* “represents the ability of a system and its component parts – i.e. people, livelihoods, buildings, infrastructure, assets – to adapt to climate security risks and to anticipate potential natural hazards which contributes to the mitigation or even prevention of future disaster risk.”³⁸⁸ In other words, *Resilience* is concerned with whether individuals and communities can respond to climate risks, anticipate hazards, and prevent disasters over the *long term*.³⁸⁹ In the HCSS Report on climate security, *(Lack of) Resilience* contains only one section with two indicators—what this proposed framework will refer to as GCS-Factor *Long-Term Adaptation*.

³⁸⁸ Remmits, Dick, and Rademaker, “Climate Security Assessment,” 26.

³⁸⁹ Remmits, Dick, and Rademaker, “Climate Security Assessment,” 65.

2.2.1. Long-Term Adaptation

Table 19. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Long-Term Adaptation.

Dominant Approach: Measured in two ways, first by Organisation for Economic Co-operation and Development's (OECD's) gross insurance premium indicator (measured as a percentage of GDP to reduce the favourability of this indicator for larger economies), and second as implementation of the Sendai Framework for Disaster Risk Reduction in relation to a country's achievements regarding the seven global targets of the Sendai framework, which are as follows:³⁹⁰

Global target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2005-2015.

Global target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared with 2005-2015.

Global target C: Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.

Global target D: Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.

Global target E: Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.

Global target F: Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.

Global target G: Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

³⁹⁰ "Insurance - Gross Insurance Premiums - OECD Data," OECD, accessed June 2, 2022, <http://data.oecd.org/insurance/gross-insurance-premiums.htm>; "Sendai Framework Indicators," PreventionWeb, accessed June 2, 2022, <https://www.preventionweb.net/sendai-framework/sendai-framework-indicators>.

FPEcon/FPEcol Approach: As with many traditional understandings within climate security, looking only at *Long-Term Adaptation* in a gender-blind fashion results in oversights that are bound to reinforce gender inequalities and leave women less resourced and supported to deal with future climate hazards. For instance, conventional conceptions of climate insurance are typically gender blind—they fail to take into consideration the ways in which the financial industry is highly gendered and often exclusive to men, as well as how, “differences between women and men affect their life cycle risks with implications for their needs and preferences for inclusive insurance products and services.”³⁹¹

The Sendai Framework for Disaster Risk Reduction (SFDRR) is also not without problems related to gender equality. It has four main priorities: (1) understanding disaster risk; (2) strengthening disaster risk governance to better manage disaster risk; (3) investing in disaster risk reduction resilience; and (4) enhancing disaster preparedness for effective response and to encourage ‘build back better’ recovery, rehabilitation, and reconstruction schemes.³⁹² The SFDRR touches only very lightly on gender issues, and suffers from many of the same problems that plague sustainable development and disaster literatures as well. In particular, FPEcon scholars have argued that the SFDRR uses problematic gendered perspectives that cast women as only victims or virtuous actors.³⁹³ In the context of *Long-Term Adaptation* and DRR, and with the pressures of social reproduction in mind, Arora-Jonsson, Bradshaw, Rao, and others critique recent turns toward the gendering of development and disaster planning for either casting women as passive victims and recipients of humanitarian aid, or for the instrumentalization of virtuous women—both approaches lack a focus on the transformation of foundational gender inequalities that underpin women’s lack of power to improve their *Long-Term Adaptation*, and ignore women’s active roles in climate resilience.³⁹⁴ As such, the following discussion will focus on the power imbalances at the core of failed DRR approaches and how to transform them to ensure an equitable level of resilience can be achieved.

Brief comparison of dominant and feminist definitions of Long-Term Adaptation.

³⁹¹ Martina Wiedmaier-Pfister and Katherine Miles, “Mainstreaming Gender and Targeting Women in Inclusive Insurance: Perspectives and Emerging Lessons A Compendium of Technical Notes and Case Studies” (The Women and Inclusive Insurance Project, 2017), 2.

³⁹² “Sendai Framework at a Glance,” PreventionWeb, March 18, 2015, <https://www.preventionweb.net/sendai-framework/sendai-framework-at-a-glance>.

³⁹³ Arora-Jonsson, “Virtue and Vulnerability.”

³⁹⁴ Seema Arora-Jonsson, “Virtue and Vulnerability: Discourses on Women, Gender and Climate Change,” *Global Environmental Change, Special Issue on The Politics and Policy of Carbon Capture and Storage*, 21, no. 2 (May 1, 2011): 744–51, <https://doi.org/10.1016/j.gloenvcha.2011.01.005>; Smriti Rao and A. Akram-Lodhi, *Feminist Political Economy: A Review Essay*, 2020; Sarah Bradshaw, “Gendered Rights in the Post-2015 Development and Disasters Agendas,” *IDS Bulletin* 46, no. 4 (2015): 59–65, <https://doi.org/10.1111/1759-5436.12158>; Yumiko Tanaka, Mikio Ishiwatari, and Atsuko Nonoguchi, “Disaster Recovery from a Gender and Diversity Perspective: Cases Following Megadisasters in Japan and Asian Countries,” *PreventionWeb*, 2019, 20.

Table 20. Short Overview of the Long-Term Adaptation Gender-Climate-Security Linkages.

Human Security³⁹⁵	Gender Equality-Security Mechanisms
Linkage 2.2.1.A. Pre-disaster, women may experience deeper poverty than men → women may be more likely to work in sectors which are prone to be impacted by climate change (like agriculture) → women may have fewer resources/assets with which to adapt to climate change in the future	<i>Societal capacity</i>
Linkage 2.2.1.B. Depending on the type and location of a climate disaster, women may be more profoundly impacted → gendered norms may result in women being unable to receive/access support and aid → social protection schemes may exclude women → women's resources/assets may be further diminished/degraded, further complicating long-term adaptation	<i>Societal capacity</i>
Linkage 2.2.1.C. Post-disaster, women's unpaid care burdens are likely to increase more than men's → women may experience higher levels of SGBV → resultantly, women's physical and emotional reserves may be taxed severely, making long-term adaptation difficult	<i>Societal capacity</i>
Linkage 2.2.1.D. Post-disaster, women's economic reserves may be exhausted, especially if her economic activity is disrupted → women may feel compelled to engage in maladaptive coping mechanisms (pulling children out of school, selling assets, taking on expensive informal loans) → women's long-term adaptability will be further restricted	<i>Societal capacity</i>
Linkage 2.2.1.E. Gendered norms may prevent women from purchasing CRI and other financial products that would ensure long-term adaptation → post-disaster, women may only be able to access informal networks for aid (family, friends, etc.) → women may have insufficient funds to adapt and prepare for future crises	<i>Societal capacity</i>

³⁹⁵ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security ³⁹⁵		Gender Equality-Security Mechanisms
Linkage 2.2.1.F.	The SFDRR does not routinely require sex-disaggregated data collection → women's and girls' needs for long-term adaptation are often unknown	<i>Societal capacity</i>
Linkage 2.2.1.G.	The SFDRR does not uniformly promote gender equality in meaningful/substantive DRR leadership → when leadership is mentioned in the context of gender, women are grouped with youth and people with disabilities (downplaying women's authority and failing to recognize intersectionalities) → DRR plans frequently do not consider women's unique requirements for long-term adaptation and HA/DR implementation	<i>Societal capacity</i>
Linkage 2.2.1.H.	VAWG (violence against women and girls) tends to increase and SRHR services are often limited following disasters → The SFDRR does not recognize these risks → women's adaptability is ultimately curtailed	<i>Societal capacity</i>
Linkage 2.2.1.I.	Women are referenced as 'resources' in the SFDRR → women's roles are understood in service to DRR efforts, rather than DRR plans serving women → women may be over-burdened by additional DRR responsibilities, further limiting their adaptability	<i>Societal capacity</i>
National/International Security ³⁹⁶	Pathway	Motivational Mechanisms
Linkage 2.2.1.J.	Pre-disaster, states facing economic constraints and low law enforcement may be unable to complete long-term adaptation projects → post-disaster such states may see recovery/reconstruction projects as opportunities for crime infiltration, corruption, elite capture, rent-seeking, and other inequities	<p>[Requires research]</p> <p><i>Greater opportunities (typically women)[∅] and pull of networks (typically men)[∅]</i></p>

³⁹⁶ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security³⁹⁶	Pathway	Motivational Mechanisms
Linkage 2.2.1.K. Poor adaptation + climate disasters may exacerbate existing tensions and conflicts → extremist groups may use disasters to recruit new members	Crime/violence/extremism	[Requires research] <i>Pull of networks</i> (typically men) [∅]
Linkage 2.2.1.L. Governments are likely to prioritize short-term issues over long-term challenges like climate change → states may have poorly developed DRR plans → may lead to poor disaster responses → may prompt protests related to lack of government capabilities, competence, compassion, correctness, credibility, or anticipation	Anti-state grievance	<i>Avoid abuse[§]</i> while men may be motivated by <i>exposure to violence/repression[§]</i>
Linkage 2.2.1.M. Poorly prepared governments may demonstrate low ‘competence’ in disaster recovery and may lack ‘compassion’ for the public’s challenges → may stimulate or exacerbate tensions between groups	Grievances between societal groups	<i>Avoid abuse[§]</i> (typically women) and <i>exposure to violence/repression or revenge[§]</i> (typically men)
Linkage 2.2.1.N. Poorly prepared governments may deliver disaster aid without transparency or fairness (low ‘correctness’) → may prompt feelings of inequity and unfairness → may trigger or intensify tensions between various groups	Grievances between societal groups	[Requires research] <i>Avoid abuse</i> (typically women) [∅] and <i>exposure to violence/repression or revenge</i> (typically men) [∅]
Linkage 2.2.1.O. Poorly prepared governments may not have sufficient (insurance-based) social safety net funding → what is available may be distributed with prejudice (low ‘correctness’) → may prompt feelings of inequity and unfairness → may trigger or intensify tensions between various groups	Grievances between societal groups	<i>Avoid abuse[§]</i> (typically women) and <i>exposure to violence/repression[§]</i> or <i>revenge</i> (typically men)
Linkage 2.2.1.P. A state may have a DRR planning deficit due to funding, corruption, incompetence, or other reasons → when a	Grievances between societal groups	[Requires research] <i>Fundamentalist ideologies</i> (both

National/International Security³⁹⁶	Pathway	Motivational Mechanisms
climate disaster hits, it is likely to be poorly managed in such states → should the disaster trigger mass migration, existing intrastate and interstate tensions may be amplified	/ Interstate tensions	women and men), <i>revenge</i> , and <i>pull of networks</i> (typically men) [∅]

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with a \$; those with no research with ∅. For a full explanation of each Linkage, see sections 2.2.1.1 and 2.2.1.2.

2.2.1.1. Long-Term Adaptation and Human Security

Climate change has already exacted heavy costs on society, and continues to test the abilities of communities to adjust and anticipate future climate threats. In this GCS-Factor section on *Long-Term Adaptation*, the discussion will start by exploring the two indicators used by the HCSS Report to measure a system's or individual's resilience—(1) insurance premiums and (2) how well a system is performing in terms of meeting the goals for Disaster Risk Reduction set out in the Sendai Framework (SFDRR). From there, particular focus will be given to the ability to adapt over the long term through analysis of several *societal capacity Gender Equality-Security Mechanisms*: economic stability before and after a climate shock; the gendering of insurance; the impact of unpaid care burdens and SGBV on long-term adaptability; and the ways in which the SFDRR falls short of adopting a thorough gender analysis.³⁹⁷

Looking first at the need for *Long-Term Adaptation* to climate risks, insurance is an important mechanism for raising precautionary funds and/or planning to share the

³⁹⁷ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

costs for relief, recovery, and reconstruction following future disasters. Climate risk insurance (CRI) in particular is important for protecting affected populations, communities, and individuals from climate vulnerabilities and impacts.³⁹⁸ Indeed, in terms of long-term adaptability to a changing climate, CRI “builds financial resilience, cushioning individuals, households, businesses, and communities from economic shocks, preventing them from falling into poverty or becoming poorer.”³⁹⁹

However, while climate disaster costs are increasing, the trend is that few assets globally are covered by insurance. Miles and Wiedmaier-Pfister suggest annual economic losses worldwide due to climate disasters are currently at \$520 billion (including the costs of lost consumption and wellbeing).⁴⁰⁰ Yet, only 30% of all catastrophic losses globally over the past 10 years were covered by insurance.⁴⁰¹ Adding to the risk is the fact that millions of households are increasingly choosing to relocate for better economic, educational, health, and social opportunities, but in the process, many of the poorest households relocate to regions prone to disasters and are often unable to purchase insurance for their assets following their relocation. Hallegatte et al. find that, “from 1970 to 2010 the world population grew by 87%, while the population in flood plains increased by 114% and in cyclone-prone coastlines by 192%.”⁴⁰² Trends both of mass migration of

³⁹⁸ Katherine Miles and Martina Wiedmaier-Pfister, “Applying a Gender Lens to Climate Risk Finance and Insurance” (Bonn, Germany: The InsuResilience Global Partnership Secretariat, November 2018), 7, https://www.insuresilience.org/wp-content/uploads/2018/11/insuresilience_applygender_181128_web.pdf.

³⁹⁹ Wiedmaier-Pfister and Miles, “Mainstreaming Gender and Targeting Women in Inclusive Insurance: Perspectives and Emerging Lessons A Compendium of Technical Notes and Case Studies,” 2.

⁴⁰⁰ Miles and Wiedmaier-Pfister, “Applying a Gender Lens to Climate Risk Finance and Insurance,” 6.

⁴⁰¹ “The USD 1.3 Trillion Disaster Protection Gap: Innovative Insurance Tools Exist to Support Governments to Be Better Prepared” (Swiss Re, October 7, 2015), https://www.swissre.com/dam/jcr:2e488fcc-4725-4d30-b6a4-de1f2c234304/SwissRe_ClosingtheGap_PR_EN.pdf.

⁴⁰² Stephane Hallegatte, Marianne Fay, and Edward B. Barbier, “Poverty and Climate Change: Introduction,” *Environment and Development Economics* 23, no. 3 (2018): 217–33, <https://doi.org/10.1017/S1355770X18000141>.

human populations and lack of insurance, especially for the poorest, are expected to increase as climate breakdown intensifies.

When looking at the role insurance plays in gendered *Long-Term Adaptation*, *societal capacity* is the most applicable *Gender Equality-Security Mechanism*, and as such will be the focus for the remainder of this discussion in the context of *Human Security*. Of the many power imbalances explained throughout this study that limit women's resilience and long-term adaptability to climate threats, climate risk insurance is of particular importance. Miles and Wiedmaier-Pfister note the following climate vulnerabilities pertinent to this discussion (Linkage 2.2.1.A, Linkage 2.2.1.B, Linkage 2.2.1.C):⁴⁰³

1. Women may face higher rates of poverty and lower economic participation;
2. Women are more likely to participate in the economy through the agricultural sector which is generally the hardest impacted by climate change;
3. Women generally have fewer assets and resources with which to build resilience;
4. Disasters may impact women more profoundly than men;
5. Social norms and unconscious bias can result in women receiving less support, and suffering higher rates of gender-based violence, in the aftermath of a disaster;
6. Social protection (public benefit) schemes often exclude women;
7. Women are more likely to see their unpaid care and domestic burdens increase following a disaster, leaving them with less time for recovery and economic activity.

⁴⁰³ Miles and Wiedmaier-Pfister, "Applying a Gender Lens to Climate Risk Finance and Insurance," 8–10.

Having insurance may protect against many of these risks, and may also allow women to forgo other post-disaster coping mechanisms, such as pulling children out of school, selling assets, or engaging in expensive informal lending programs (Linkage 2.2.1.D).⁴⁰⁴ However, feminist critiques of western financial institutions point out that traditional insurance markets and products revolve around the private sector, which has typically adopted policies and processes that further entrench gender inequalities in the drive for profits over social welfare.⁴⁰⁵ Without gender transformative insurance products and services, women may only have informal networks of help to aid them during crises.⁴⁰⁶ Furthermore, according to the World Bank, 155 of 173 states still have at least one law that restricts women's economic opportunities, with a total of 943 gender differences across all 173 economies studied (unfortunately the data does not specify how many restrict access to insurance in particular).⁴⁰⁷ Other barriers to gender inclusive insurance markets include lack of awareness and marketing of insurance options for women and lack of financial literacy programs for women.⁴⁰⁸ Importantly, central bankers, financial policymakers, and insurance providers frequently fail to tailor financial services to women's unique needs, including different risk profiles, unique protection needs, longer life expectancies, gender-specific health risks, fluctuating cash flows, fewer assets, restrictive ownership and inheritance laws, and higher rates of self-employment

⁴⁰⁴ Wiedmaier-Pfister and Miles, "Mainstreaming Gender and Targeting Women in Inclusive Insurance: Perspectives and Emerging Lessons A Compendium of Technical Notes and Case Studies," 3.

⁴⁰⁵ Luke Power, "New Ways or Old Tricks? The World Bank's Gender and Its Implications for Health," *International Journal of Health Services* 50, no. 1 (2020): 21–31, <https://doi.org/10.1177/0020731419885090>.

⁴⁰⁶ Power, "New Ways or Old Tricks?"

⁴⁰⁷ *Women, Business and the Law 2016: Getting to Equal Key Findings* (The World Bank Group, 2015), 1, https://doi.org/10.1596/978-1-4648-0677-3_ch1.

⁴⁰⁸ Wiedmaier-Pfister and Miles, "Mainstreaming Gender and Targeting Women in Inclusive Insurance: Perspectives and Emerging Lessons A Compendium of Technical Notes and Case Studies," 3.

and participation in the informal economy (Linkage 2.2.1.E).⁴⁰⁹ Miles and Wiedmaier-Pfister offer some suggestions for incorporating gender into CRI models, which are summarized in Table 21.

Table 21. Gender Transformative Climate Risk Insurance.

CRI Model	Gender Transformative Considerations
Indirect Insurance:	
Intended beneficiaries (public or private entities) do not hold the insurance policy, though they may contribute to it.	
<i>Macro-level:</i> Policyholder is a public entity (national or local government) which pays premiums on behalf of the vulnerable, with payouts made rapidly for government services, cash flows, disaster-related operations, and targeted assistance while humanitarian assistance is organized.	Can provide assistance to the most vulnerable women, though gender-inclusive eligibility would have to be specified in the policy. Need to consider gender-specific needs, direct enrollment of women, and perhaps financing women’s premiums.
<i>Meso-level:</i> Policyholder is an institution (NGO, cooperative, employer, agribusiness) that acts as a risk aggregator, while the enrolled (clients, members, or employees) maintain a relationship with the policyholder. Payouts are used to provide direct/indirect benefits to the enrolled.	Can provide insurance for women-owned institutions or institutions that primarily serve women. May need to encourage and motivate institutions to provide outreach to women.
Direct Insurance:	
Intended beneficiaries hold the insurance policy, pay the premiums, and receives payouts directly.	
<i>Micro-level:</i> Policyholder is a group or an individual beneficiary, usually provided on a commercial basis with the insurer marketing the insurance product directly to consumers or groups. Example: agricultural, weather-based insurance.	Direct outreach to women may be required, unless women make up the bulk of client base already. Need to consider women-specific products, coverage, and payout processes; develop awareness raising among women; encourage women’s participation in workplace insurance.

*Description of Miles and Wiedmaier-Pfister’s CRI gender mainstreaming models, summarized by the author.*⁴¹⁰

⁴⁰⁹ Wiedmaier-Pfister and Miles, “Mainstreaming Gender and Targeting Women in Inclusive Insurance: Perspectives and Emerging Lessons A Compendium of Technical Notes and Case Studies,” 3.

In addition to examining the ways in which gender transformative CRI may increase women's long-term adaptability, the HCSS framework also considers communal resilience and *Long-Term Adaptation* planning that realizes the DRR needs and expectations of affected groups. The UN Office for Disaster Risk Reduction (UNDRR) defines disaster risk as, "The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society, or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability, and capacity."⁴¹¹ Here, too, the *societal capacity Gender Equality-Security Mechanism* applies, since DRR plans inevitably impact the most vulnerable in societies. In particular, the HCSS framework examines the role of the Sendai Framework for Disaster Risk Reduction (SFDRR) developed by the United Nations (UN) in 2015. Understanding the implications of the SFDRR on long-term gendered adaptation requires a bit of history about transnational movements to address climate risk and gender equality. The precursor to the SFDRR was the UN's Hyogo Framework for Action (HFA), which was established in 2005. The HFA was critiqued for merely mentioning the need to integrate a gender perspective in all disaster risk management policies, plans, and processes; gender was not actually integrated into the HFA itself.⁴¹² The SFDRR was purported to have remedied this omission in part through consultations with the Women's Major Group (WGM) and women's civil society organizations around the world. As a result, SFDRR was the first to call out the need to recognize women as leaders and agents of change.⁴¹³ However, it

⁴¹⁰ Miles and Wiedmaier-Pfister, "Applying a Gender Lens to Climate Risk Finance and Insurance," 21.

⁴¹¹ "Trends and Impacts in Conflict Settings, No. 6: Developing a Risk-Assessment Framework for the Arab Region" (Beirut, Lebanon: United Nations: ESCWA, 2019), 8, <https://archive.unescwa.org/file/106215/download?token=1ifHHOFB>.

⁴¹² Sarah Bradshaw, "Gendered Rights in the Post-2015 Development and Disasters Agendas," *IDS Bulletin* 46, no. 4 (2015): 63, <https://doi.org/10.1111/1759-5436.12158>.

⁴¹³ Kimber and Steele, "Feminist Advocacy on International Agreements for Disaster Risk Reduction."

too has received criticism for changing little in terms of gender mainstreaming compared to the HFA.⁴¹⁴ Missing from the SFDRR are several important gender mainstreaming factors, including those offered by Bradshaw (which are summarized in Table 22).

Table 22. Lack of Gender Mainstreaming in the Sendai Framework.

Sex-Disaggregated Data
Demand for routine collection of sex-disaggregated data (this was mentioned, but not uniformly throughout) (Linkage 2.2.1.F).
Women as DRR Leaders
Call for women to be designated as leaders in DRR, not just victims of disasters (Linkage 2.2.1.G). There are two short leadership statements: under ‘guiding principles / promotion of women and youth leadership’; and under Priority 4 (see above), ‘empowering women and persons with disabilities to publicly lead and promote gender equitable and universally accessible response, recovery rehabilitation and reconstruction approaches are key.’ ⁴¹⁵ However, these mentions are problematically framed. For instance, in the ‘guiding principles,’ women and youth leadership is listed together with no distinction, suggesting women’s effectiveness as leaders is given very little recognition. Listing women and those with disabilities also intimates that an individual cannot be both, thereby ignoring intersectional risks. ⁴¹⁶ These mentions are also overshadowed by the more dominant victim discourse. Additionally, the WMG suggested that the mention of the ‘critical role of women in managing disaster risk’ be ‘recognised and valued’ but only one statement mentioned women in ‘role of stakeholders’ section.
Violence Against Women and Girls
Violence against women and girls (VAWG) is not mentioned at all (Linkage 2.2.1.H).
Women’s Sexual and Reproductive Health Rights
Recognition of women’s post-event specific sexual and reproductive health rights (SRHR)—there is only one mention of SRHR under ‘access to basic health care service’ but nowhere else (Linkage 2.2.1.H).

⁴¹⁴ Bradshaw, “Gendered Rights in the Post-2015 Development and Disasters Agendas,” 64.

⁴¹⁵ “Sendai Framework at a Glance,” 8,17.

⁴¹⁶ Juliette Gerbais, “Women Representation in Disaster Risk Reduction: A Critical Discourse Analysis of the UNDRR Frameworks” (Graduation Thesis, Malmo University, 2020), 29,31, <http://www.diva-portal.org/smash/get/diva2:1472796/FULLTEXT02.pdf>.

One Short Gender Statement

The SFDRR has a single standalone gender statement that is problematic. First, it constricts women's roles in DRR only as resources, placing women in service *to* DRR rather than DRR serving women. Second, women's needs are confined to 'capacity building' and post-event 'alternative livelihoods,' thereby focusing on efficiency rather than equality, and precluding the possibility of the SFDRR filling a gender transformative role.

*Bradshaw's gender critiques of the SFDRR, as summarized by the author.*⁴¹⁷

Crucially, feminists and WPS experts have also called out the lack of women as leaders in SFDRR framing. The WPS Agenda recognizes the cumulative effects of existing norms, values, laws, and institutions that often bar women from full and meaningful participation in all aspects and levels of society. The WPS theory of change framework is structured around several feedback loops. Important for this GCS-Factor are two in particular. The first is that women's resiliency is strongly linked to women's leadership and participation in decision-making at the village or community level, and that when women have community-level leadership positions, the entire community experiences concrete benefits.⁴¹⁸ Agarwal has argued that as women lead more decision-making bodies, outcomes improve in part due to the varying ways in which women are situated within different layers of society which changes the perspectives and needs they raise.⁴¹⁹ The second feedback loop is that as more visible, senior leadership roles are held by women, implementation of other WPS principles accelerates, thereby leading to more

⁴¹⁷ Bradshaw, "Gendered Rights in the Post-2015 Development and Disasters Agendas," 64.

⁴¹⁸ Coomaraswamy, "Preventing Conflict Transforming Justice Securing the Peace: A Global Study on the Implementation of United Nations Security Council Resolution 1325," 69,87.

⁴¹⁹ Bina Agarwal, *Gender and Green Governance* (Oxford University Press, 2010), <https://doi.org/10.1093/acprof:oso/9780199569687.001.0001>.

stable, peaceful, and resilient societies.⁴²⁰ Building from feminist principles, the WMG has advocated for displacing essentialist understandings of women and gender, integrating evidence-based indicators for incorporating gender equality, and investing in the inclusion of women at all levels of DRR decision-making and implementation, yet very little of this has yet transpired.⁴²¹

Clearly the metrics by which a system's or individual's resilience are typically measured—insurance premiums and how well a system is performing in terms of meeting the DRR goals set out in the SFDRR—are inadequate for considering the gendered nature of long-term resilience. The SFDRR has received criticism for lack of thorough gender mainstreaming and continued entrenchment of gender inequalities—an unfortunate reality given the possibility to seize upon opportunities during post-disaster relief and rebuilding as times when social norms are relaxed and therefore open to transformation. Furthermore, the metrics typically used to measure *Long-Term Adaptation* fail to consider gender and economic stability before and after a climate shock; the gendering of insurance; and the impact of unpaid care burdens and SGBV on long-term adaptability. In terms of Forsberg and Olsson's research, without the social resources and networks that would support women's long-term resilience, the community will have fewer alternatives to stabilizing against fragility and resolving conflict should the need arise.

Systems such as the SFDRR can only offer genuine increases in women's *Long-Term Adaptation* when they transform the fundamental gendered structures that disadvantage women before disasters strike. Without a gender transformative approach to long-term adaptability, women are likely to continue to experience economic instability

⁴²⁰ Coomaraswamy, "Preventing Conflict Transforming Justice Securing the Peace: A Global Study on the Implementation of United Nations Security Council Resolution 1325," 281.

⁴²¹ Kimber and Steele, "Feminist Advocacy on International Agreements for Disaster Risk Reduction."

before and after a climate shock; an inability to obtain appropriate insurance for their needs; cultural barriers to achieving long-term adaptability such as unpaid care burdens and SGBV; and institutional DRR systems, such as the SFDRR, that fall short of addressing gender in every aspect.

Two important considerations must be mentioned, however. The first is that, rather than merely layer DRR leadership responsibilities on to women's already long task lists (due to unpaid care and domestic work), care must be taken to recognize and compensate women for any additional time and effort new leadership roles require of them (Linkage 2.2.1.I). Writing of women's roles in sustainable development projects, Arora-Jonsson and Leach discuss the challenge in the following ways:

‘Success’ in the projects was secured at the expense of women while new environmental chores were added to their already long list of caring roles. In addition, it obscured the interests of women not represented in the women's groups or targeted by the projects and further ignored issues concerning property and power.⁴²²

This meant that programmes ran the risk of giving women responsibility for ‘saving the environment’ without addressing whether they actually had the resources and capacity to do so.⁴²³

A thorough and sensitive consideration of existing unpaid care responsibilities often requires basic adjustments to cultural norms and expectations, as well as changes to customary and legal statutes that entrench gender inequalities in institutions and structures. A gender transformative SFDRR therefore would take this consideration seriously.

⁴²² Arora-Jonsson, “Virtue and Vulnerability.”

⁴²³ Melissa Leach, “Earth Mother Myths and Other Ecofeminist Fables: How a Strategic Notion Rose and Fell,” *Development and Change* 38, no. 1 (2007): 67–85, <https://doi.org/10.1111/j.1467-7660.2007.00403.x>.

Second, as in planning for increases in women in leadership, any future version of the SFDRR must avoid appointing women in token leadership positions. In Ban and Rao's discussion of tokenism, they note women are often chosen for political and community leadership roles based on their manipulability, lack of education, and poverty in order to ensure their *ineffectiveness*.⁴²⁴ To guard against this possibility, DRR processes and implementation must involve women in meaningful, consequential leadership roles (Linkage 2.2.1.G).

2.2.1.2. Long-Term Adaptation and National/International Security

As extreme climate events have increased in number, DRR programs have gained more attention in recent years, especially in more vulnerable regions of the world. Unfortunately, a 2022 UN Global Assessment Report on Disaster Risk Reductions suggests that global investment in climate adaptation for developing countries will need to be somewhere between \$140 billion to \$300 billion annually by 2030, and total resilience-focused infrastructure investments worldwide will need to be in the trillions of dollars annually, yet added together, global public and private investments in climate adaptation was only \$30 billion in 2018.⁴²⁵ Unfortunately, the complexity of good DRR planning is frequently a challenge for weak states or poor economies due to the significant costs associated with long-term risk assessments and adaptation/mitigation projects. Can a state's lack of planning for future disasters and their potential effects increase a system's *National/International Security* risks? As the following two passages

⁴²⁴ Radu Ban and Vijayendra Rao, "Tokenism or Agency? The Impact of Women's Reservations on Village Democracies in South India on JSTOR," *The University of Chicago Press Journals*, Economic Development and Cultural Change, 56, no. 3 (April 2008): 501–30.

⁴²⁵ "Global Assessment Report on Disaster Risk Reduction 2022" (United Nations Office for Disaster Risk Reduction, 2022), 122, <https://www.undrr.org/publication/global-assessment-report-disaster-risk-reduction-2022>.

from UN reports on disaster and conflict risk management suggest, responses to complex, interrelated risks, such as combined development, humanitarian, and security risks require that:

...institutions act in concert in support of common objectives using different instruments. This requires a level of integrated planning that is often challenging. Actors working on poverty reduction, disaster risk reduction, social service delivery, and environmental management need to come together, at different levels of government, to identify and prioritize conflict risks and responses.⁴²⁶

For effective risk management, it is critical to understand risks for all types of hazards; interlinkages between hazards, vulnerabilities and capacities; and comparison of different types of risk. Key considerations include identifying and compiling existing input data, assessing government management capacities and determining the sources and drivers of risk, the direct and indirect impacts, and potential cascading risks.⁴²⁷

As such, those states that fail to meet the challenges of preparing for disaster and bolstering the long-term adaptability of their people, infrastructure, and institutions are likely to face additional *National/International Security* challenges along all four pathways due to poor *Long-Term Adaptation* at the state or system level.⁴²⁸

For instance, as will be discussed at length in a later section on GCS-Factor *Corruption*, climate breakdown can open the door for the increase in criminal activity, suggesting a link between lack of *Long-Term Adaptation* (weak or non-existent DRR planning) and *crime/violence/extremism*. Imperiale and Vanclay, for instance, explore the

⁴²⁶ “Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict” (Washington, D.C.: International Bank for Reconstruction and Development/The World Bank, 2018), 287, <https://openknowledge.worldbank.org/handle/10986/28337>.

⁴²⁷ “Trends and Impacts in Conflict Settings, No. 6: Developing a Risk-Assessment Framework for the Arab Region,” 11.

⁴²⁸ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

DRR response to the April 6, 2009 earthquake in L'Aquila, Italy, noting in particular some of the challenges in implementing the four priorities of the Sendai Framework.⁴²⁹ Specifically, they explain that pre-earthquake reports on deficiencies of the built environment were ignored, and post-earthquake, many large projects were funded and implemented without Italian Parliament oversight, control over the use of the funds, or transparency on the results.⁴³⁰ Instead, the government's response facilitated disaster capitalism, which worsened social risks through increases in organized crime infiltration, corruption, elite capture, rent-seeking, and other inequities (Linkage 2.2.1.J).⁴³¹ Given that this malign activity often originates with organized criminal groups, men may lead the way more than women (as previously shown in section 1.2.3.2), though women may still take on support roles within organized crime groups (research connecting *Long-Term Adaptation* to gendered criminal activity is required). Here, it is possible to imagine that women may find motivations related to *greater opportunities* a draw to criminal activity, while men may be motivated by *pull of networks*, though research is required to align with findings outlined in section 1.2.3.2.

Additionally, there is a growing literature calling for ways to prevent disasters from intensifying existing tensions and conflicts, since extremist groups may amplify tensions in poorly adapted states following disasters as a way of recruiting new members

⁴²⁹ Angelo Jonas Imperiale and Frank Vanclay, "Barriers to Enhancing Disaster Risk Reduction and Community Resilience: Evidence from the L'Aquila Disaster," *Politics and Governance* 8, no. 4 (December 10, 2020): 236, <https://doi.org/10.17645/pag.v8i4.3179>.

⁴³⁰ Imperiale and Vanclay, "Barriers to Enhancing Disaster Risk Reduction and Community Resilience," 236.

⁴³¹ Imperiale and Vanclay, "Barriers to Enhancing Disaster Risk Reduction and Community Resilience," 236.

(Linkage 2.2.1.K).⁴³² Peters and Peters suggest that, “a more critical approach is needed to ensure that DRR measures do not inadvertently reinforce systemic drivers of or vulnerability to disaster and conflict risk.”⁴³³ For involvement in extremist groups, it is not clear which of the common motivations might drive women to get involved (though it is increasingly common that they are doing so), and while it may be reasonable to hypothesize that men may be motivated by *pull of networks*, research is required to understand the gendered motivations for lack of *Long-Term Adaptation*-related extremist involvement.

Long-term adaptation (or lack thereof) impacts all of the remaining types of conflict and violence (*anti-state grievances, grievances between societal groups, and interstate tensions*) when a system has a DRR planning deficit. Looking at the impacts of poor DRR on the likelihood of *anti-state grievances* developing, Olson and Gawronski suggest the politics of disaster should be understood in terms of “Maslowian Shocks.”⁴³⁴ They postulate that the public typically evaluates government disaster management along six dimensions (‘5C+A’), which are summarized in Table 23.⁴³⁵

⁴³² Katie Peters and Laura E R Peters, “Disaster Risk Reduction and Violent Conflict in Africa and Arab States: Implications for the Sendai Framework Priorities,” Briefing Note (London: Overseas Development Institute, October 2018), 2, <https://cdn.odi.org/media/documents/12446.pdf>.

⁴³³ Peters and Peters, “Disaster Risk Reduction and Violent Conflict in Africa and Arab States: Implications for the Sendai Framework Priorities,” 12.

⁴³⁴ Richard Stuart Olson and Vincent T. Gawronski, “From Disaster Event to Political Crisis: A ‘5C+A’ Framework for Analysis,” *International Studies Perspectives* 11, no. 3 (August 2010): 205–21, <https://doi.org/10.1111/j.1528-3585.2010.00404.x>.

⁴³⁵ Olson and Gawronski, “From Disaster Event to Political Crisis.”

Table 23. The 5C+A Maslowian Shocks as Drivers of Anti-State Grievances.

Capability	Resources available or easily mobilized
Competence	Appropriate/efficient application of resources
Compassion	Concern/affect demonstrated for victims
Correctness	Fairness, honesty, transparency in applying resources
Credibility	Consistent/reliable disaster information
Anticipation	Pre-disaster mitigation and preparedness, or DRR

*As proposed by Olson and Gawronski, summarized by this study's author.*⁴³⁶

Public perceptions of government disaster response generally devolves down to issues and problems on any of these six dimensions (Linkage 2.2.1.L).⁴³⁷ Even in developed countries, achieving high marks for responses in all six dimensions can be challenging due to weak governance, corruption, finances, etc. Unfortunately, In reality, most governments prioritize short-term thinking and ignore long-term vulnerabilities in attempts to deal with urgent national, regional, and local priorities that are more likely (counter to what the SFDRR attempts to accomplish) to garner political attention and therefore votes.⁴³⁸ Under such circumstances, dissatisfaction with a government's response is likely to be quite a bit higher than cases in which governments have adequately prepared, making political instability and protests far more likely. Gender may play a role in which of the 5C+A Maslowian shocks drive *anti-state grievances*. According to a climate-fragility risk case study of Mali, Nagarajan found that existing rent-seeking, corruption, and misuse of financial resources (including international aid)

⁴³⁶ Olson and Gawronski, "From Disaster Event to Political Crisis."

⁴³⁷ Olson and Gawronski, "From Disaster Event to Political Crisis."

⁴³⁸ Olson and Gawronski, "From Disaster Event to Political Crisis."

has fueled a breakdown in state-citizen relations and trust, leading to a loss of security, increased conflict, and failure to uphold rule of law.⁴³⁹ Both women and men are motivated to engage with armed opposition groups, but as Nagarajan has shown, their involvement is frequently determined by prescribed gender norms and roles:⁴⁴⁰

While engagement in direct fighting tends to be the preserve of men, women play crucial roles of gathering intelligence and serving as informants, providing supplies and goods, contributing economic services, and encouraging family members to join. Women have significant influence over (potential) fighters, with older women mobilising communities to support causes and either encouraging men to fulfil their ‘masculine’ role by taking up arms to avenge wrongs or dissuading them from committing violence. Women’s affinity for AOGs comes from similar social exclusion dynamics as pertain to men in addition to their desire for the education that is often denied to them. AOGs offer protection, advantages and opportunities. A partner or spouse is the primary influencer for both women and men in deciding to join or leave an AOG, followed by mothers.

Applying this gender lens, the following discussion suggests that it would be reasonable to posit that any number of gendered motivations may be behind *anti-state grievances*, *grievances between societal groups*, and even spillover into *interstate tensions* when states fail to deliver adequate DRR plans.

One example of *grievances between societal groups* due to the lack of ‘competence’ and ‘compassion’ dimensions is a 1970 hurricane that struck the Bay of Bengal in East Pakistan, killing 500,000 people and causing massive flooding (Linkage 2.2.1.M). The government’s response was slow and lacked compassion, and resulted in an intensification of resentment of West Pakistani by East Pakistani groups.⁴⁴¹ In such cases, *avoid abuse* (typically women) and *exposure to violence/repression or revenge*

⁴³⁹ Chitra Nagarajan, “Climate-Fragility Risk Brief: Mali” (Germany: Climate Security Expert Network & adelphi, May 28, 2020), 7, https://climate-security-expert-network.org/sites/climate-security-expert-network.org/files/documents/csen_climate_fragility_risk_brief_mali.pdf.

⁴⁴⁰ Nagarajan, “Climate-Fragility Risk Brief: Mali,” 7.

⁴⁴¹ Olson and Gawronski, “From Disaster Event to Political Crisis.”

(typically men) could conceivably be reasons for group-based tensions, though research on these particular linkages is needed.

In addition to ‘compassion’ and ‘competence,’ a government’s ‘correctness’ (transparency and fairness) in delivering assistance programs may play into *anti-state grievances* and *grievances between societal groups*, especially if there is favouritism of one group and marginalization of others that spark intrastate tensions (Linkage 2.2.1.N). Natural hazards such as those caused by climate change turn into disasters when groups of people are left vulnerable and unprepared, and disasters are far more likely to exacerbate existing tensions and conflicts when there is no disaster management plan. Here disaster and climate risk insurance will also be a factor in the public’s perception of a government’s correct response to extreme climate hazards. In a UN report on pathways to achieving peace, the authors note that as changes come to economies, adaptation to shifts in the role of labour in the economy can generate social stress, which can lead to violent conflict (they write in particular of technological change in a post-industrial era, though the same might also apply to disaster-caused economic shifts).⁴⁴² The authors point out that social safety net and distributive policies like unemployment insurance are often required to mitigate the potential social stress in order to prevent violence and tensions.⁴⁴³ Similar social stresses post-disaster may also trigger political conflict and violence, especially when such distributive policies are lacking or managed unequally (Linkage 2.2.1.O). In particular, the report suggests that financing for regional prevention efforts could come in the form of insurance that offers states reasonable, predictable, coordinated disbursement of funds with escalating risks (preventing spillover impacts

⁴⁴² “Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict,” 55.

⁴⁴³ “Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict,” 56.

from *interstate tensions* or disasters).⁴⁴⁴ Such insurance would require states to have risk management plans in place that address development, diplomacy, and security needs (arguably climate security needs), plans which may further strengthen a state's long-term adaptability to climate risks.⁴⁴⁵ Taking the Maslowian perspective offered by Olson and Gawronski, a reasonable hypothesis may be that these types of inter-group tensions draw participation of both women and men along *avoid abuse* (typically women) and *exposure to violence/repression or revenge* (typically men), though research on gendered motivational mechanisms is required.

Another way a disaster could trigger tensions between groups in poorly prepared states is by triggering the dimensions of 'correctness' or 'mitigation,' which may increase feelings of resentment for other groups. For instance, Hilhorst and colleagues explain that, should a poorly managed disaster displace large groups of people, triggering mass migration, such movements of people may exacerbate or even spark new interstate disputes (Linkage 2.2.1.P).⁴⁴⁶ They go on to note, "Whether a disaster negatively impacts conflict depends on a variety of factors; for example, low DRR investments or a weak government response. These factors in turn increase the likelihood of disasters, as weak DRR, government incapacity, and political instability increase vulnerability and compromise disaster preparedness."⁴⁴⁷ Under such circumstances, it may be possible to imagine that motivations such as *fundamentalist ideologies* (both women and men),

⁴⁴⁴ "Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict," 288.

⁴⁴⁵ "Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict," 288.

⁴⁴⁶ Thea Hilhorst et al., "Strengthening Community Resilience in Conflict: Learnings from the Partners for Resilience Programme," *ISS Working Paper Series/General Series* 666 (November 10, 2020): 15, <https://repub.eur.nl/pub/131291/>.

⁴⁴⁷ Hilhorst et al., "Strengthening Community Resilience in Conflict," 87.

revenge, and *pull of networks* (typically men) draw people to participate in such conflicts, however research on this linkage is lacking as well.

Clearly, systems that make an effort to plan and save for climate-based shocks are likely to fare much better following such disasters, and therefore be less likely to experience increases in crime, violence, extremism, grievances, tensions, and conflicts at all levels of society. Prepared local institutions and national governments are far better equipped to deliver support and services that measure up to the public's Maslowian expectations for capability, compassion, competence, correctness, credibility, and anticipation, thereby also diminishing the likelihood that new or amplified grievances between groups or across borders develop. However, such high levels of efficiency and effectiveness require long-term thinking and prioritizing risks that may seem remote, and as such require governments to act with courage and foresight. They also require the global community to act in solidarity with fragile and developing states to fund their *Long-Term Adaptation* plans. Furthermore, including women in such planning and preparation may reduce rates of corruption, improve overall outcomes for women, and thereby improve community security to decrease the chances of future instability.

2.2.1.3. Summary of Gender-Climate-Security and Long-Term Adaptation

A summary visualizing Gender-Climate-Security connections to *Long-Term Adaptation* can be found in Figure 14. A list of Diagnostic Questions in Table 54 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

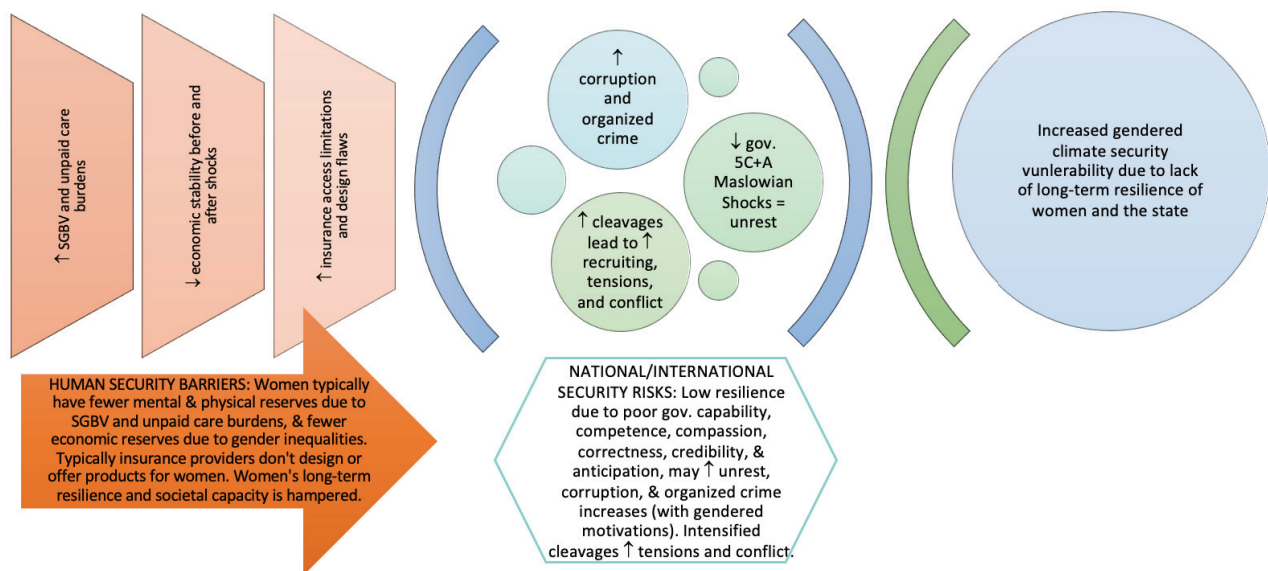


Figure 14. Gendered Climate Security Vulnerabilities in Long-Term Adaptation.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Long-Term Adaptation.

Chapter 3.

Susceptibility

Susceptibility to climate change hazards, the focus of this chapter, is a fundamentally important GCS-Phase that determines an individual's or system's ability to adapt to and recover from climate breakdown. An individual's or region's *Susceptibility* to climate hazards is determined by the tendency of climate-exposed vital elements to suffer loss, damage, or other adverse effects because of climate hazards, and is often determined by socially constructed elements such as government stability.⁴⁴⁸ There is a negative feedback loop at work since increased susceptibility to climate-related hazards also affects a state's ability to recover from and maintain stability following repeated crises.

This chapter is divided into two GCS-Phases of a system's *Susceptibility*, including (1) GCS-Phase *Socioeconomic* which covers several GCS-Factors, including *Poverty, Life Expectancy, Education, Standard of Living, Unemployment, Socioeconomic Development, and Infrastructure*; as well as (2) GCS-Phase *Institutional* which includes two GCS-Factors: *Corruption* and *State Fragility*. As in the previous chapter, each GCS-Factor will first be explored in terms of conventional versus feminist conceptions. This will be followed by an extensive exploration of the gendered *Human Security* aspects of that GCS-Factor, as well as the gendered *National/International Security* aspects of that GCS-Factor. At the start of each GCS-Factor section will be a table summarizing the

⁴⁴⁸ Remmits, Dick, and Rademaker, "Climate Security Assessment," 27.

Gender-Climate-Security Linkage findings within that section. These *Linkages* will be categorized based on the lenses of analysis developed in Chapter 1, and can be referenced based on the *Linkage* numbering employed in the longer discussions explaining *Gender-Climate-Security Linkages*. As before, for *Human Security*, (1) categories are based on Forsberg and Olsson’s *Gender Equality-Security Mechanisms* including *societal capacity*, and one of three ‘*socioeconomic development*’ (SD), (referred to as ‘*SD-urban surplus males-state-based conflict*,’ ‘*SD-surplus males-non-state conflict*,’ and ‘*SD-surplus males-unemployment*’). For *National/International Security*, findings are (2) organized first by Climate Diplomacy’s four ‘*Intermediary Mechanisms*’ (*crime/violence/extremism*, *anti-state grievances*, *grievances between societal groups*, and *interstate tensions*), and then further categorized according to (2A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (2B) patterns of gender and civic unrest participation (*anti-state grievances*) (section 1.2.3.3); and (2C) patterns of gendered motivations for armed combat participation (particularly *anti-state grievances*, *grievances between societal groups*, and *interstate tensions*) (section 1.2.3.4). Each GCS-Factor section will offer a list of diagnostic questions (in the Appendix) to facilitate the use of this proposed framework in analysis of real life climate insecurity scenarios.

3.1. Socioeconomic

The following portion of Chapter 3 offers an examination of how the socially-constructed gender inequalities shaped by socioeconomic norms and institutions may increase the *Susceptibility* of certain individuals and systems to climate security risks.⁴⁴⁹

⁴⁴⁹ Remmits, Dick, and Rademaker, “Climate Security Assessment,” 81.

Social and economic inequality, supported by globalization, colonialism, and imperialism, and reinforced by poor governance and cultural norms and beliefs, may intensify societal divides that, when stressed by climate hazards, trigger increases in instability, violence, and conflict.⁴⁵⁰ The socioeconomic factors covered in this section include *Poverty, Life Expectancy, Education, Standard of Living, Unemployment, Socioeconomic Development, and Infrastructure*.

3.1.1. Poverty

Table 24. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Poverty.

<p>Dominant Approach: Measures the percentage of a population living at \$1.90 a day at 2011 international prices.⁴⁵¹</p>
<p>FPEcon/FPEcol Approach: According to Johnsson-Latham, conventional understandings of gender generally frame the poverty conversation in terms of ‘tradeables’ such as those allocated to the market and (often primarily men’s) paid work, thereby ignoring women’s unpaid contribution to economies.⁴⁵² As such, conventional theory tends to overlook laws, norms, and attitudes about gender that create barriers to prevent women from entering a trade-based market to overcome poverty, such as limits in access to education, mobility, employment, inheritance, land, and personal freedoms.⁴⁵³ A more useful and positive framing, according to Johnsson-Latham, is the gender and development (GAD) discourse, which emphasizes power structures, focusing on the problem of male privilege and how to transform dominant power structures.⁴⁵⁴</p> <p>Expanding on this concept, feminist political economist Kabeer frames the issue of poverty and gender in terms of horizontal inequalities (defined by social identities, such</p>

⁴⁵⁰ Shaffer, “An Anthropological Perspective on the Climate Change and Violence Relationship,” 232.

⁴⁵¹ “Poverty Headcount Ratio at \$1.90 a Day (2017 PPP) (% of Population),” The World Bank, accessed April 11, 2022, <https://data.worldbank.org/indicator/SI.POV.DDAY>.

⁴⁵² Gerd Johnsson-Latham, “Power, Privilege and Gender as Reflected in Poverty Analysis and Development Goals,” in *The International Handbook of Gender and Poverty*, by Sylvia Chant (Edward Elgar Publishing, 2010), 42, <https://doi.org/10.4337/9781849805162.00014>.

⁴⁵³ Johnsson-Latham, “Power, Privilege and Gender,” 42.

⁴⁵⁴ Johnsson-Latham, “Power, Privilege and Gender,” 43.

as gender, caste, and race) and vertical inequalities (defined by income/wealth hierarchies).⁴⁵⁵ Combining both horizontal and vertical dimensions draws attention to the intersection of overlapping inequalities stemming from discrimination and social exclusion that are often at the heart of persistent poverty.⁴⁵⁶ Rather than viewing poverty as a reflection of average household income, viewing poverty using these hierarchies makes it possible to understand how multiple, reinforcing inequalities make it very challenging for people to overcome poverty, and importantly, makes visible that individuals within a household may not be equally poor or well-off.⁴⁵⁷ FPEcon True in particular links structural inequalities of capitalism, based in part on gender, with social inequalities that determine the roles women and men play at home and on the warfront.⁴⁵⁸

Brief comparison of dominant and feminist definitions of Poverty.

Table 25. Short Overview of the Poverty Gender-Climate-Security Linkages.

Human Security ⁴⁵⁹	Gender Equality-Security Mechanisms
Linkage 3.1.1.A. Climate change intensifies demands on women's unpaid labour as a crucial variable of adjustment to shocks → women have less time available for income-generating activities → women's poverty deepens → women have fewer financial resources available for adapting to further climate shocks	<i>Societal capacity</i>
Linkage 3.1.1.B. Expectations for women to take on more unpaid labour are amplified due to climate breakdown → women's wellbeing and mental health may be impacted → burnout becomes more likely → women have fewer emotional resources available for adapting to further climate shocks	<i>Societal capacity</i>

⁴⁵⁵ Naila Kabeer, "Gender, Poverty, and Inequality: A Brief History of Feminist Contributions in the Field of International Development," *Gender and Development* 23, no. 2 (2015): 190, <https://doi.org/10.1080/13552074.2015.1062300>.

⁴⁵⁶ Kabeer, "Gender, Poverty, and Inequality," 190.

⁴⁵⁷ Kabeer, "Gender, Poverty, and Inequality," 191.

⁴⁵⁸ Jacqui True, "What Has Poverty Got to Do With It?: Feminist Frameworks for Analyzing Violence against Women," in *The Political Economy of Violence against Women*, Oxford Studies in Gender and International Relations (Oxford University Press, 2012), 17–34, <http://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199755929.001.0001/acprof-9780199755929-chapter-2>.

⁴⁵⁹ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security⁴⁵⁹		Gender Equality-Security Mechanisms
Linkage 3.1.1.C. Climate breakdown may disrupt local labour markets → men may find gaining new employment difficult and therefore may lack the financial capacity to get out of poverty → if men's economic status is diminished relative to women's, rates of SGBV against women may increase		<i>Societal capacity</i>
Linkage 3.1.1.D. Climate change requires adaptive responses → women's resources are consumed or sold off before men's → women's poverty deepens → women's climate exposure to climate risks increases		<i>Societal capacity</i>
National/International Security⁴⁶⁰	Pathway	Motivational Mechanisms
Linkage 3.1.1.E. Climate-caused poverty may increase economic inequality → crime rates may increase (violent crime by men and to men, property crime by women)	Crime/violence/extremism	[Requires research] <i>Increase survival (typically women)[∅] and pull of networks or personal security (typically men)[∅]</i>
Linkage 3.1.1.F. Climate-driven increases in poverty may impact women's and men's economic security → violent civic disruption may increase	Anti-state grievances	[Requires research] <i>Increase survival (typically women)[∅] exposure to violence/repression or pull of networks (typically men)[∅]</i>

⁴⁶⁰ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security ⁴⁶⁰	Pathway	Motivational Mechanisms
Linkage 3.1.1.G. Climate shocks may require families to seek new sources of capital → cultural norms may prevent men from gaining loans → men may lack the financial capacity to get out of poverty → if men's economic status is diminished (especially relative to women's), men may channel negative feelings into political or armed violence	Crime/violence/extremism // Anti-state grievances	[Requires research] <i>SD-surplus males-unemployment Gender Equality-Security Mechanism[§]</i>
Linkage 3.1.1.H. State-level poverty may breakdown state authority → paramilitaries may privatize violence → unemployed people may be attracted to rebel groups through existing networks	Grievances between societal groups	[Requires research] <i>SD-surplus males-unemployment Gender Equality-Security Mechanism[§] // Increase survival (typically women)[∅] and pull of networks (typically men)[§]</i>
Linkage 3.1.1.I. Climate change may reduce a state's capacity to generate economic growth and provide social welfare → population poverty rates may increase → can lead to political unrest that have spillover effects for cross-border and global security	Interstate tensions	[Requires research] <i>Greater opportunities (typically women)[∅] and pull of networks (typically men)[∅]</i>

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with a [§]; those with no research with [∅]. For a full explanation of each Linkage, see sections 3.1.1.1 and 3.1.1.2.

3.1.1.1. Poverty and Human Security

The poorest segments of society are likely to feel the impacts of climate breakdown most acutely. A systematic review of research by Hallegatte et al. found that there is a reinforcing feedback loop between climate change and *Poverty*, in that *Poverty*

intensifies the *Susceptibility* of people and communities to climate shocks and stressors, while climate *Susceptibility* keeps people in *Poverty*.⁴⁶¹ Yet climate change will not impact all people living in *Poverty* in the same ways. In examining GCS-Factor *Poverty*, it's important to examine the gendered power imbalances that result in people's different adaptive responses—the decisions people living in *Poverty* make that determine their chances of recovering from climate-caused crises in the future. In particular, the ensuing discussion will explore how climate change will impact women's unpaid care and domestic work (UCDW) burdens and the effects that increased demands will have on women's mental and physical health; the changes to labour markets and how such changes will impact women and men; as well as the ways in which gendered adaptive responses may increase individual *Susceptibility* to climate shocks in the future. Looking at gendered power structures, it is easy to see how *Poverty* is felt by groups differently, resulting in varying impacts on *Human Security*. As such, the first *Gender Equality-Security Mechanism* we examine is that of *societal capacity*, particularly related to how inequalities impact women's economic power.⁴⁶²

FPEcon theory of social reproduction suggests higher value is typically placed on public, masculine work while private feminine work is often devalued and unpaid. When women and men are burdened unequally due to different expectations for unpaid care work, women may experience a form of horizontal gender-based inequality that deepens climate-caused *Poverty* and insecurity (Linkage 3.1.1.A).⁴⁶³ Privileged masculinist

⁴⁶¹ Hallegatte, Fay, and Barbier, "Poverty and Climate Change," 2018.

⁴⁶² *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

⁴⁶³ True and Tanyag, "Global Violence and Security from a Gendered Perspective."

structures inevitably deepen women's and girls' existing *Poverty* relative to that of men and boys, and thus also the stability of their communities.⁴⁶⁴ Furthermore, in times of climate crisis, FPEcon research suggests that women's time is a crucial variable of adjustment to shocks because of the roles women play at home, in the community, and in the wider market. Under pressure of climate-induced disasters, impoverished women may take on more unpaid labour to compensate for lost public services (education, family health care, child care, etc.) or to produce high-cost items themselves (such as clothing or food).⁴⁶⁵ For instance, Sogani has found that in India, the workload of women (including girl children) has increased significantly due to climate breakdown: "fruit and vegetable production has become more demanding, family members fall ill more often, it takes more time to find fuel and drinking water, and women must undertake more frequent repairs and maintenance to the household."⁴⁶⁶ Lawson et al. note, "Existing economic systems have already pushed carers and their dependents to the brink, and now the environmental degradation they promote could tip them over the edge."⁴⁶⁷ Moser has also found that under such circumstances, women in Ecuador often burn out, exhausted by the competing responsibilities (Linkage 3.1.1.B).⁴⁶⁸

Women's ability to handle new climate stressors may also decrease their *societal capacity* due to power imbalances that lead to maladaptive shock-based adaptations made by people living with *Poverty*. An FPEcon perspective suggests that these adaptations should be understood as existing on a loose continuum, along which earlier responses to

⁴⁶⁴ True and Tanyag, "Global Violence and Security from a Gendered Perspective."

⁴⁶⁵ Kabeer, "Gender, Poverty, and Inequality," 199.

⁴⁶⁶ Sogani, "Gender Approaches in Climate Compatible Development," 19.

⁴⁶⁷ Max Lawson et al., "Time to Care: Unpaid and Underpaid Care Work and the Global Inequality Crisis" (Oxford: Oxfam International, January 28, 2020), 41, <https://www.oxfam.org/en/research/time-care>.

⁴⁶⁸ Caroline Moser, *The Impact of Recession and Adjustment Policies at the Micro-Level: Low Income Women and Their Households in Guayaquil, Ecuador*. (Santiago, Chile: UNICEF, 1988).

shocks such as climate breakdown pose little threat to the household's productive base, while later responses entail greater risks:⁴⁶⁹

These might include cutting back on number of meals consumed, purchasing less nutritious foods, foraging for wild food, borrowing from neighbours or money lenders, turning to wealthier patrons, letting illness go untreated, depletion of household stores, selling off smaller consumer durables, taking children out of school, and temporary migration in search of work. Much later in the sequence came the selling off of producer assets, which was likely to undermine the household's chances of recovery. The final stages could include permanent migration, and the breakdown of the family unit.

Not surprisingly, women's goods are often the first to be sold off or consumed, leaving women with fewer resources for recovery (Linkage 3.1.1.C).⁴⁷⁰ Long-term, such gender inequalities may reduce women's abilities to earn income, thereby weakening community stability, pushing it toward further instability.

Within the *Poverty* sphere, the *SD-surplus males-unemployment Gender Equality-Security Mechanism* may also be a factor. At baseline, men experience lower rates of *Poverty* than women, and the impact of economic crises is usually less in the formal economy (relative to women), and for shorter periods of time (though sometimes this effect is reversed in the informal economy).⁴⁷¹ Nevertheless, men living with *Poverty* face some of the similar economic threats women face during climate-caused shocks.⁴⁷²

Furthermore, additional economic stressors, especially in armed conflict zones, may

⁴⁶⁹ Kabeer, "Gender, Poverty, and Inequality," 196.

⁴⁷⁰ Bina Agarwal, "Social Security and the Family: Coping with Seasonality and Calamity in Rural India," in *Social Security in Developing Countries*, ed. Ahtisham Ahmad et al. (Oxford: Oxford University Press, 1991), <https://doi.org/10.1093/acprof:oso/9780198233008.003.0005>; Janice Jiggins, "Women and Seasonality: Coping with Crisis and Calamity," *IDS Bulletin* 17, no. 3 (July 1986): 9–18, <https://doi.org/10.1111/j.1759-5436.1986.mp17003003.x>.

⁴⁷¹ Kabeer, "Gender, Poverty, and Inequality," 193, 201.

⁴⁷² Kabeer, "Gender, Poverty, and Inequality," 193, 201.

threaten men’s masculinity. Ultimately this may lead to increased rates of SGBV, further diminishing women’s *societal capacity* (Linkage 3.1.1.D).⁴⁷³

In examining GCS-Factor *Poverty*, the preceding discussion has shown that there exists a reinforcing feedback loop between climate change and *Poverty*, with *Poverty* intensifying the vulnerability of people and communities to climate shocks and stressors, while climate vulnerability keeps people in *Poverty*.⁴⁷⁴ Those living with the most extreme levels of *Poverty*—which are often women, especially women-headed households—are likely to feel the impacts of climate change most acutely, and are therefore more susceptible to the impacts of climate change. Transforming the gendered structures and institutions that keep women in *Poverty* will be an important tool for increasing women’s *societal capacity*—and boosting community stability.

Transformative approaches should address household level changes in UCDW responsibilities, cultural norms around SGBV, and the need to support women following climate shocks to ensure their resources and assets are not lost at a relatively faster rate than others.

3.1.1.2. Poverty and National/International Security

There is a general consensus that *Poverty* and conflict reinforce one another, and that climate change has already begun to increase *Poverty* globally. Some research also suggests that increased *Poverty* rates may amplify threats of *National/International*

⁴⁷³ K. L. Falb et al., “Gender Norms, Poverty and Armed Conflict in Côte D’Ivoire: Engaging Men in Women’s Social and Economic Empowerment Programming,” *Health Education Research* 29, no. 6 (December 2014): 1015–27, <https://doi.org/10.1093/her/cyu058>.

⁴⁷⁴ Stephane Hallegatte, Marianne Fay, and Edward B. Barbier, “Poverty and Climate Change: Introduction,” *Environment and Development Economics* 23, no. 3 (2018): 217–33, <https://doi.org/10.1017/S1355770X18000141>.

Insecurity along several pathways (though there is some contestation as to how).⁴⁷⁵ Regardless of the cause, it's important to note that the economic impacts of climate-induced conflict can generate direct costs to victims and governments in lost food systems, energy, and water infrastructure, and increased costs of policing; as well as indirect costs such as economic losses, physical and physiological trauma, displacement, loss of education, and lost productivity.⁴⁷⁶ These combined losses have a multiplier effect that feeds into the vicious cycle of *Poverty* and conflict.⁴⁷⁷ The Institute of Economics and Peace describes it this way: costs associated with increasing violence hinders economic growth, which deteriorates peacefulness, which in turn leaves fewer viable alternatives to using violence to deal with grievances, violence, and conflict, thereby increasing climate *Susceptibility*.⁴⁷⁸

Along the *crime/violence/extremism* pathway, findings are somewhat contested. Historically, quantitative studies suggest that only when loss of livelihood or property is combined with temperature increases, water scarcity, land degradation, or population displacements does increased *Poverty* lead to increased crime.⁴⁷⁹ However, some case studies provide supporting data for the hypothesis that alone, climate-induced *Poverty* will stimulate higher crime rates. A recent meta-analysis by Pratt and Cullen shows that *Poverty* is among the most stable macro-level predictors of crime (as well as racial

⁴⁷⁵ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

⁴⁷⁶ "Economic Value of Peace 2021" (Sydney: Institute for Economics & Peace, January 2021), 28, <https://www.economicsandpeace.org/wp-content/uploads/2021/01/EVP-2021-web-1.pdf>.

⁴⁷⁷ "Economic Value of Peace 2021," 28.

⁴⁷⁸ "Economic Value of Peace 2021," 47.

⁴⁷⁹ Agnew, "Dire Forecast," 29.

heterogeneity and family disruption).⁴⁸⁰ Additionally, it is increasingly well-established that climate change is expected to negatively impact *Poverty* levels, and that the impact is likely to be felt far more profoundly by those already poor, thereby increasing economic inequality over time.⁴⁸¹ *Poverty* and inequality (measured by the GINI Index) combined are the best indicators of increased crime rates, according to Anser et al.⁴⁸² Similarly, Agnew notes that increased inequality “will exacerbate the effect of increased *Poverty* on crime.”⁴⁸³ This will be discussed in greater detail in section 3.1.6.1.

While no studies have yet examined changes in crime/violence rates based on how gender intersects with climate-induced *Poverty*, as discussed in section 1.2.3.1, in general, there is a persistent gender gap in who commits violent crime.⁴⁸⁴ In particular, young men living with *Poverty* are significantly more likely to engage in crime, and be victims of crime (possibly motivated by motivations such as *pull of networks* or *personal security*).⁴⁸⁵ Regardless, women are increasingly involved in criminal activity (particularly property crimes). As such, though women are likely to see lower earnings from criminal activity than men, it is important to consider whether climate-induced *Poverty* may lead to more property-related crimes committed by women (Linkage 3.1.1.E). Research could be done to test whether women might be driven to engage in criminal activity by motivations such as *increase survival*.⁴⁸⁶

⁴⁸⁰ Travis C. Pratt and Francis T. Cullen, “Assessing Macro-Level Predictors and Theories of Crime: A Meta-Analysis,” *Crime and Justice: A Review of Research* 32 (2005): 378.

⁴⁸¹ Hallegatte, Fay, and Barbier, “Poverty and Climate Change,” 2018.

⁴⁸² Muhammad Khalid Anser et al., “Dynamic Linkages between Poverty, Inequality, Crime, and Social Expenditures in a Panel of 16 Countries: Two-Step GMM Estimates,” *Journal of Economic Structures* 9, no. 1 (June 5, 2020): 1–25, <https://doi.org/10.1186/s40008-020-00220-6>.

⁴⁸³ Agnew, “Dire Forecast,” 29.

⁴⁸⁴ Zhong et al., “Understanding Women’s Antisocial and Criminal Behavior.”

⁴⁸⁵ Smith and Ashiabi, “Poverty and Child Outcomes,” 840.

⁴⁸⁶ Campaniello, “Women in Crime.”

Along the *anti-state grievance* pathway, Parpart argues that since the Cold War, ‘new wars’ are being fought which, unlike previous shock and awe wars, focus on conflicts within a state’s borders.⁴⁸⁷ Parpart posits that the inability of weak states to adjust to global economic neoliberal restructuring and participate in globalization leads to social unrest within their borders, unrest which is intensified by ethnic and religious divides, and sometimes gender divides.⁴⁸⁸ As noted in 1.2.3.3, where violent civic action is concerned, men are more likely to participate in disruptive activities. No gender-based studies have been done on motivations connecting climate-fueled *Poverty* to political unrest, so testing if unemployed working-class men who have experienced ongoing marginalization are motivated by *exposure to violence/repression* or *pull of networks*, or if *increase survival* may motivate women to contribute to political unrest might be beneficial (Linkage 3.1.1.F).⁴⁸⁹ One example for how climate-caused *Poverty* may lead to increased demonstrations is that, in some cultures, men are perceived as untrustworthy due to norms about male alcohol abuse, making it difficult or impossible for them to borrow money during times of economic hardship and potentially increasing feelings of shame.⁴⁹⁰ Should climate-induced shocks deepen *Poverty* levels for large groups of young men and prevent them from fulfilling masculine roles (such as getting married, which is often tied to finding employment), extremist groups may find it easier to recruit such men via the *SD-surplus males-unemployment Gender Equality-Security Mechanism*,

⁴⁸⁷ Jane L. Parpart, “Masculinity, Poverty and the ‘New Wars,’” in *The International Handbook of Gender and Poverty*, by Sylvia Chant (Edward Elgar Publishing, 2010), 674, <https://doi.org/10.4337/9781849805162.00123>.

⁴⁸⁸ Parpart, “Masculinity, Poverty and the ‘New Wars,’” 674.

⁴⁸⁹ Sikweyiya and Nkosi, “Violent Protests and Gendered Identities”; Rucht, “The Spread of Protest Politics.”

⁴⁹⁰ Sogani, “Gender Approaches in Climate Compatible Development,” 23.

especially in urban environments, while these men may also be more inclined to resort to violent protest to redress their concerns (Linkage 3.1.1.G).

Gender and climate change may also intersect with *Poverty* to increase rates of *grievances between societal groups*. Burke et al. have argued that *Poverty* is one of the best indicators for within-state conflict engendered by climate change.⁴⁹¹ State-level *Poverty* can lead to a breakdown of public authority, and a blurring of public and private security/combatants, resulting in a privatization of violence.⁴⁹² In such states, the aggrieved poor may be more likely to rebel, while ‘greedy’ war entrepreneurs find ways to profit off of the conflict (Linkage 3.1.1.H).⁴⁹³ Offering a gender lens, Parpart suggests that the new wars are cheap, especially because the constant flow of unemployed young men offers a “permanent source of recruitment.”⁴⁹⁴ (This aspect of *Poverty* also aligns with the *Gender Equality-Security Mechanism* of *SD-surplus males-unemployment*). These young men may find fighting to be a pathway to meeting masculine cultural expectations—when traditional paths to adult manhood are barred by *Poverty*, achieving social recognition and prestige may come through militant prowess.⁴⁹⁵ For instance, in Somalia where a, “newly hegemonic form of masculinity” contingent on the generation and control of wealth for the clan has led to increased armed violence; those who cannot obtain wealth on their own may be compelled to join groups that can aid in increasing

⁴⁹¹ Marshall B. Burke et al., “Climate Robustly Linked to African Civil War,” *Proceedings of the National Academy of Sciences of the United States of America* 107, no. 51 (October 30, 2010), <https://doi.org/10.1073/pnas.1014879107>.

⁴⁹² Parpart, “Masculinity, Poverty and the ‘New Wars,’” 675.

⁴⁹³ Parpart, “Masculinity, Poverty and the ‘New Wars,’” 675.

⁴⁹⁴ Parpart, “Masculinity, Poverty and the ‘New Wars,’” 676.

⁴⁹⁵ Parpart, “Masculinity, Poverty and the ‘New Wars,’” 677.

their status.⁴⁹⁶ Similar sentiments have been manipulated by groups such as Boko Haram and Islamic State in West Africa Province to recruit young men in the Lake Chad region.⁴⁹⁷ These findings suggest the *pull of networks* (Linkage 3.1.1.G) may be strongly at work. However, as discussed in 1.2.3.4, research has shown that women combatants are growing in numbers in armed/rebel groups (possibly due to desires to *increase survival*) so the gender link *Poverty* and climate change rebel group involvement needs to be studied.⁴⁹⁸ Furthermore, through complex relationships between cultural norms and combat participation, women may find it easier to participate in rebel groups, and conversely that women's participation may boost community gender equality within.⁴⁹⁹

Looking at the *interstate tensions* pathway, Rice makes the case that national-level *Poverty* diminishes a state's capacity to provide four critical goods: basic physical security, government legitimacy, economic growth, and social welfare (Linkage 3.1.1.I).⁵⁰⁰ A fragile state that is unable to meet the needs of its people may see increased *Poverty* rates among its poorest groups, potentially leading to spillover effects for cross-border and global security.⁵⁰¹ Under such circumstances, motivations related to *greater opportunities* (women) and *pull of networks* (men) may be useful lines of research into how women and men may engage in activities that risk state security in this way.

⁴⁹⁶ Judy El-Bushra and Judith Gardner, "The Impact of War on Somali Men: Feminist Analysis of Masculinities and Gender Relations in a Fragile Context," *Gender & Development* 24, no. 3 (September 1, 2016): 443–58, <https://doi.org/10.1080/13552074.2016.1233668>.

⁴⁹⁷ Saheed Babajide Owonikoko and Jude A. Momodu, "Environmental Degradation, Livelihood, and the Stability of Chad Basin Region," *Small Wars & Insurgencies* 31, no. 6 (August 17, 2020): 1295–1322, <https://doi.org/10.1080/09592318.2020.1776092>.

⁴⁹⁸ Thomas and Wood, "The Social Origins of Female Combatants."

⁴⁹⁹ Kampwirth, *Women & Guerrilla Movements*; Thomas and Wood, "The Social Origins of Female Combatants."

⁵⁰⁰ Susan E. Rice, "Poverty Breeds Insecurity," in *Too Poor for Peace?*, ed. Lael Brainard and Derek Chollet, Global Poverty, Conflict, and Security in the 21st Century (Brookings Institution Press, 2007), 32, <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/10.7864/j.ctt6wpfc8.5>.

⁵⁰¹ Rice, "Poverty Breeds Insecurity," 32.

This GCS-Factor *Poverty* discussion has centred on the ways in which *Poverty* may intersect with existing cleavages (along ethnic, religious, socioeconomic class, or gender divides), and how the combined factors may contribute to increased political instability or higher crime rates. Economic inequality between groups may be of particular importance when diagnosing how gender and *Poverty* may intensify existing grievances, especially for young unemployed men. Furthermore, attention should be paid to how increased government impoverishment may diminish the efficiency and effectiveness of institutions to deliver basic goods and services, thereby contributing to increases in *Poverty* and potential amplification of economic grievances. In economic matters, government benefit programs should benefit all genders—decreasing *Poverty* among women may help to stabilize communities, while addressing *Poverty* among men may help to alleviate anxieties that drive feelings of shame that may lead to greater involvement in violence and conflict.

3.1.1.3. Summary of Gender-Climate-Security and Poverty

A summary visualizing Gender-Climate-Security connections to Poverty can be found in Figure 15. A list of Diagnostic Questions in Table 55 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

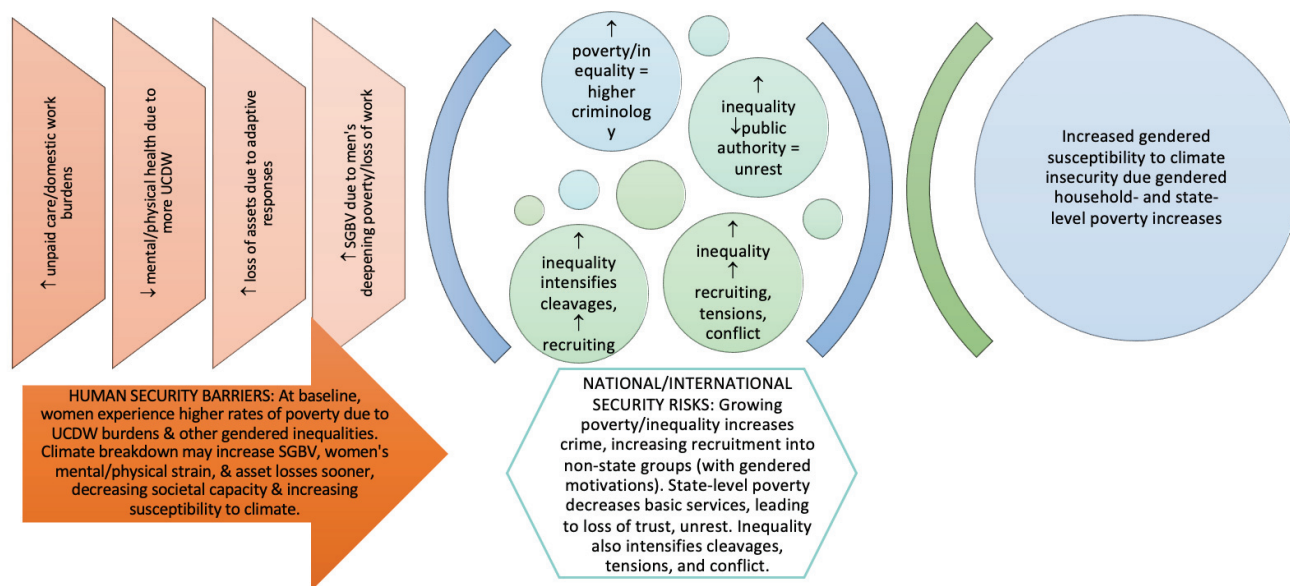


Figure 15. Gendered Climate Security Vulnerabilities in Poverty.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Poverty.

3.1.2. Life Expectancy

Table 26. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Life Expectancy.

Dominant Approach: On average, the number of years a newborn can expect to live, assuming current death rates remain the same. An increase in life expectancy at birth is a reflection of rising living standards, better education, access to quality health services, and improved lifestyle conditions.⁵⁰²

FPEcon/FPEcol Approach: Looking at life expectancy without a gender lens obscures the differential impact climate change has on the number of years women and men live, and ignores the broader security implications of gendered population changes that may result. As before, the concept of social reproduction will be useful in this discussion on life expectancy, which will make use of all three elements of social reproduction feminism (SRF) theory noted previously (biological reproduction, unpaid production, and reproduction of culture and ideology).⁵⁰³ Many systems for measuring economic activity do not reflect the gendered hierarchies of the political economy, making it difficult to value activities of social reproduction, and rendering such measurements inaccurate and flawed.⁵⁰⁴ In particular, the exclusion of social reproduction results in a failure to consider the often uncounted depletion of the body due to fewer resource inputs compared to resource outputs, resulting in a de facto bodily subsidy to the economy.⁵⁰⁵ As previously discussed, Rai et al.'s depletion through social reproduction (DSR) model arises from social inequities that eventually lead to unaccounted-for harm: damage, injury, detriment, impairment, or violence.⁵⁰⁶ In speaking of the concept of depletion of the body, the authors write:

while discrete, it is relational, while being depleted on an individual basis, it does so within social frameworks that position it in relations to other bodies. These relations are historically specific and contested and as such these influence the ways in which bodies are viewed, used/abused, work and are worked upon, depleted and replenished. What needs to be thought through here is what the body needs for its continued existence, without which it can deteriorate faster than it

⁵⁰² "Health Status - Life Expectancy at Birth," The OECD, accessed March 31, 2022, <http://data.oecd.org/healthstat/life-expectancy-at-birth.htm>.

⁵⁰³ Rai, Hoskyns, and Thomas, "Depletion and Social Reproduction," 3.

⁵⁰⁴ Rai, Hoskyns, and Thomas, "Depletion and Social Reproduction," 3.

⁵⁰⁵ Rai, Hoskyns, and Thomas, "Depletion and Social Reproduction," 6.

⁵⁰⁶ Rai, Hoskyns, and Thomas, "Depletion and Social Reproduction," 7.

need, affecting the individual body but also the social institutions within which it remains embedded.⁵⁰⁷

As such, an examination of Gender-Climate-Security linkages to Life Expectancy must consider how women's bodies are depleted by climate change, and consequently how that DSR affects the community as a whole. The concept of DSR will therefore form the foundation of the discussion of gender and climate security in the following section on life expectancy.

Brief comparison of dominant and feminist definitions of Life Expectancy.

Table 27. Short Overview of the Life Expectancy Gender-Climate-Security Linkages.

Human Security ⁵⁰⁸	Gender Equality-Security Mechanisms
Linkage 3.1.2.A. Climate crises may create economic stress → may impact rates of sex-selective abortion (a son preference practice)	<i>Societal capacity</i>
Linkage 3.1.2.B. Climate extreme weather events may amplify son preference practices → girls may receive less breastmilk; lower quality food; lower vitamin supplementation; fewer vaccinations → may cause an increase in excess female under-5 mortality rates	<i>Societal capacity</i>
Linkage 3.1.2.C. Intense climate disasters may cause significant loss of life → such disasters are more likely to kill women when gender inequality is high, especially when cultural norms create barriers for women fleeing extreme weather → mortality rates among women may be higher than men in a disaster	<i>Societal capacity</i>
Linkage 3.1.2.D. Cultural norms may prevent women from learning survival skills such as swimming → women's clothing may create barriers to getting out of the path of a disaster → cultural norms about modesty may supersede a woman's desire	<i>Societal capacity</i>

⁵⁰⁷ Rai, Hoskyns, and Thomas, "Depletion and Social Reproduction," 8.

⁵⁰⁸ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security⁵⁰⁸	Gender Equality-Security Mechanisms
to get medical help following a disaster → mortality rates among women may be higher than men in the immediate aftermath of a disaster	
Linkage 3.1.2.E. A climate disaster may have indirect consequences → women are more likely than men to be impacted by damage to agriculture, public health systems, infrastructure, the social order → women's indirect mortality rates may be higher due to poor sanitation, overcrowding, poor living conditions; malnutrition; sexual disease; obstetrical/pregnancy-related disease	<i>Societal capacity</i>
Linkage 3.1.2.F. Pre-disaster, power structures may result in unequal choices and resources (denial of access to reproductive choice; affordable public benefits; access to safety-net programs; lower or zero compensation for feminized labour) → women may have fewer life reserves → a climate disaster may more profoundly impact women's bodies	<i>Societal capacity</i>
Linkage 3.1.2.G. Performance of social reproduction depletes women's bodies due to an imbalance in unpaid care burdens → following an extreme climate-related event, demand for women's social reproduction labour may intensify → women's bodies are likely to be further depleted → women may have a increase susceptibility to climate risks when the next crisis arrives	<i>Societal capacity</i>
Linkage 3.1.2.H. A climate crisis may increase population sex ratio imbalances → rates of SGBV may increase → SGBV may further deplete women's life reserves and life expectancy	<i>Societal capacity</i>
Linkage 3.1.2.I. A climate crisis may increase rates of SGBV even without sex ratio imbalances → SGBV may further deplete women's life reserves and life expectancy	<i>Societal capacity</i>

National/International Security ⁵⁰⁹	Pathway	Motivational Mechanisms
Linkage 3.1.2.J. Climate change may impact the gender balance at birth and in childhood brackets through sex-selective abortion or son preference practices during childhood → the population sex ratio may become imbalanced → more young men in urban/rural state-based and non-state violence	Anti-state grievances // Grievances between societal groups	[Requires research] <i>SD-urban surplus males-state-based conflict / SD-surplus males-non-state conflict</i> [∅]
Linkage 3.1.2.K. Intense climate disasters may cause significant loss of life → such disasters are more likely to kill women when gender inequality is high, especially when cultural norms create barriers for women learning survival skills or fleeing extreme weather → mortality rates among women may be higher than men in the immediate aftermath of a disaster → may lead to population sex imbalances → may lead to more young men in urban/rural state-based and non-state violence	Anti-state grievances // Grievances between societal groups	[Requires research] <i>SD-urban surplus males-state-based conflict / SD-surplus males-non-state conflict</i> [∅]
Linkage 3.1.2.L. A climate disaster may have indirect consequences → women are more likely than men to be impacted by damage to agriculture, public health systems, infrastructure, the social order → women's indirect mortality rates may be higher due to poor sanitation, overcrowding, poor living conditions; malnutrition; sexual disease; obstetrical/pregnancy-related disease → may lead to population sex imbalances → may lead to more young men in urban/rural state-based and non-state violence	Anti-state grievances // Grievances between societal groups	[Requires research] <i>SD-urban surplus males-state-based conflict / SD-surplus males-non-state conflict</i> [∅]

⁵⁰⁹ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security ⁵⁰⁹	Pathway	Motivational Mechanisms
Linkage 3.1.2.M. Climate disasters may change life expectancies more in one gender than the other → may impact population sex ratios → may result in more unpartnered men than women or unpartnered women (context specific) → may increase men-to-men violence (especially when stable social bonds are absent) and crime rates (drug abuse, prostitution, trafficking of women)	Crime/violence/extremism // Grievances between societal groups	SD-surplus males-non-state conflict [§]

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with a §; those with no research with ∅. For a full explanation of each Linkage, see sections 3.1.2.1 and 3.1.2.2.

3.1.2.1. Life Expectancy and Human Security

A growing list of studies project that climate change will have a deleterious effect on *Life Expectancy* around the world.⁵¹⁰ As discussed in the GCS-Factor *Healthcare*, the mechanisms by which climate change is expected to negatively impact public health and human mortality are many. Notably, a recent *Lancet* report finds that climate breakdown will expose vulnerable populations to new and increased infectious diseases, lower *Food Security*, contaminated air, and reduced quantities and qualities of drinking water.⁵¹¹

Hauer and Santos-Lozada's research shows that extreme weather events such as heat

⁵¹⁰ Mathew E. Hauer and Alexis R. Santos-Lozada, "Inaction on Climate Change Projected to Reduce European Life Expectancy," *Population Research and Policy Review* 40, no. 3 (June 2021): 629–38, <https://doi.org/10.1007/s11113-020-09584-w>; Richard Parncutt, "The Human Cost of Anthropogenic Global Warming: Semi-Quantitative Prediction and the 1,000-Tonne Rule," *Frontiers in Psychology* 10 (2019), <https://www.frontiersin.org/article/10.3389/fpsyg.2019.02323>; R. Daniel Bressler, "The Mortality Cost of Carbon," *Nature Communications* 12, no. 1 (July 29, 2021): 4467, <https://doi.org/10.1038/s41467-021-24487-w>.

⁵¹¹ Nick Watts et al., "The 2018 Report of the Lancet Countdown on Health and Climate Change: Shaping the Health of Nations for Centuries to Come," *The Lancet* 392, no. 10163 (December 8, 2018): 2479–2514, [https://doi.org/10.1016/S0140-6736\(18\)32594-7](https://doi.org/10.1016/S0140-6736(18)32594-7).

waves, cold waves, coastal and river flooding, wildfires, droughts, and windstorms will also shorten human life, even in developed regions.⁵¹² Obviously, environmental change that fundamentally threatens people's life expectancies is a *Human Security* concern. Centring the issue of DSR, this analysis will start with the *Gender Equality-Security Mechanism of societal capacity* by examining the direct ways that climate insecurity may shorten girls' and women's life expectancies, followed by a discussion of the indirect ways in which DSR and unequal power structures may limit women's choices and resources resulting in lower life reserves.⁵¹³ Third, still within the realm of the *societal capacity Gender Equality-Security Mechanisms*, the discussion will turn to the ways in which climate change may impact population sex ratios, and how that might contribute to women's climate insecurity.

First, a look at climate's direct impacts on girls' and women's life expectancies. There are two primary time periods in which climate change may limit girls' lives—during gestation and into childhood. Starting at pregnancy, through sex selective abortion, parents may choose to prefer bearing sons, (though importantly, the decision to continue or end a pregnancy may not be in a woman's control). Ultimately, this type of son preference practice literally shortens girls fetus' life expectancies to zero.⁵¹⁴

⁵¹² Hauer and Santos-Lozada, "Inaction on Climate Change Projected to Reduce European Life Expectancy."

⁵¹³ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three '*socioeconomic development*' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*').

⁵¹⁴ Rai, Hoskyns, and Thomas, "Depletion and Social Reproduction"; For instance, climate-related fertility changes could result in an excess of males as measured by 'sex ratio at birth,' which is defined as the number of male live births for every 100 female live births, a measure that has remained remarkably consistent across human populations at 105-107 male births for every 100 female births. Hesketh Therese and Zhu Wei Xing, "Abnormal Sex Ratios in Human Populations: Causes and Consequences," *Proceedings of the National Academy of Sciences* 103, no. 36 (September 5, 2006): 13271–75, <https://doi.org/10.1073/pnas.0602203103>; Studies have shown a variety of ways climate change may impact human sex ratios at birth. The first is that changing weather patterns and climate-caused disasters

[Interestingly, several other biological factors may also cause an imbalance in sex ratios at birth.⁵¹⁵] Common in Asia, the Middle East, and North Africa, parents may adopt a son preference for many reasons: perceived higher earning capacity of males; concerns over continuation of the family line through males; the need for a male inheritance recipient; and the economic burden of girls due to dowry systems and lifelong financial support.⁵¹⁶ Exposure to climate shocks is a relatively new factor on the list of reasons for adopting son preference practices at conception. Jung has shown that extreme weather shocks could cause an increase in the rate of sex-selective abortion, likely due to economic stressors that increase preferences for boy children (Linkage 3.1.2.A).

Beyond gestation, son preference norms are often practiced into childhood, further shortening the life expectancies of girl children. Several studies have shown that, at baseline in some cultures, girl children receive lower parental investment, resulting in girls receiving less breastmilk; lower quality food; lower vitamin supplementation; and

may impact sex ratios at conception. Helle et al. found that for every 1 degree Celsius (1.8 degree Fahrenheit) temperature increase, there was a 0.06 percent increase in ratio of boy to girl newborns in the Sami people of Northern Finland, suggesting a 3 degree Celsius increase could result in thousands of 'extra' boys in larger populations. Samuli Helle, Samuli Helama, and Jukka Jokela, "Temperature-Related Birth Sex Ratio Bias in Historical Sami: Warm Years Bring More Sons," *Biology Letters* 4 (November 27, 2007): 60–62, <https://doi.org/10.1098/rsbl.2007.0482>; However, Fukuda et al. and Catalano et al. have found links between temperature fluctuations and other environmental events that create extreme stress and increased parental cortisol secretion, resulting in lower male-to-female sex ratios at birth, due in large part to the vulnerability of Y-bearing sperm cells, male embryos, and/or male fetuses to maternal stress. Misao Fukuda and Kiyomi Fukuda, "The Male to Female Ratio of Newborn Infants in Japan in Relation to Climate Change, Earthquakes, Fetal Deaths, and Singleton Male and Female Birth Weights," *Early Human Development* 140 (January 2020), <https://doi.org/10.1016/j.earlhumdev.2019.104861> As such, it is difficult to predict what sex ratio impact a specific community may experience, and may depend on whether parents experience slow-onset or extreme acute climate breakdown. Nevertheless, should fertility-level changes in sex ratio at birth persist into young adulthood, communities may find higher rates of state- and non-state violence by disaffected men.

⁵¹⁵ Jaehyun Jung, "Weather Shocks and Sex-Selective Abortion: Evidence from Rural Vietnam" (Korean Economic Association Proceedings, New York: Columbia University, 2017), 41, http://kea.ne.kr/conference-2017/download/S4-5-2_Jaehyun%20Jung.pdf; "Selective Abortion of Girls Appears Common throughout India" (Harvard T.H. Chan School of Public Health, May 18, 2011), <https://www.hsph.harvard.edu/news/hsph-in-the-news/abortion-girls-india-subramanian/>.

⁵¹⁶ Therese and Xing, "Abnormal Sex Ratios in Human Populations: Causes and Consequences."

fewer vaccinations.⁵¹⁷ Several studies have demonstrated that pre-existing discriminatory practices that disadvantage the health of girls become exacerbated during crises (such as climate disasters), intensifying the health impact on girls (and women).⁵¹⁸ For instance, a study by Thamarapani concludes that natural disasters between 2002 and 2007 in Indonesia resulted in girls showing measurable differences in health outcomes (they were shorter and more stunted) compared to boys.⁵¹⁹ This type of gender discrimination against girl children has been shown by Kashyap, Behrman, and Krishnan to result in excess female under-5 mortality (Linkage 3.1.2.B).⁵²⁰

Finally, looking beyond childhood, studies have shown that emergencies such as climate disasters tend to heighten both short-term mortality rates and long-term health deterioration among women during adulthood.⁵²¹ Several recent studies have noted that natural disasters such as those caused by climate change, including floods or droughts, may kill more women than men, with the disparities increasing as disaster intensity and

⁵¹⁷ Seema Jayachandran and Ilyana Kuziemko, “Why Do Mothers Breastfeed Girls Less than Boys? Evidence and Implications for Child Health in India*,” *The Quarterly Journal of Economics* 126, no. 3 (August 1, 2011): 1485–1538, <https://doi.org/10.1093/qje/qjr029>; Elisabetta Aurino, “Do Boys Eat Better than Girls in India? Longitudinal Evidence on Dietary Diversity and Food Consumption Disparities among Children and Adolescents,” *Economics & Human Biology*, In Honor of Nobel Laureate Angus Deaton: Health Economics in Developed and Developing Countries, 25 (May 2017): 99–111, <https://doi.org/10.1016/j.ehb.2016.10.007>; Silvia Helena Barcellos, Leandro S. Carvalho, and Adriana Lleras-Muney, “Child Gender and Parental Investments in India: Are Boys and Girls Treated Differently?,” *American Economic Journal: Applied Economics* 6, no. 1 (January 2014): 157–89, <https://doi.org/10.1257/app.6.1.157>; Anand Krishnan, “Gender Inequity in Child Survival: Travails of the Girl Child in Rural North India” (Medical Dissertation, Umeå, Sweden, Umeå University, 2013), 5, <https://www.diva-portal.org/smash/get/diva2:648011/FULLTEXT02.pdf>.

⁵¹⁸ Neumayer and Plümper, “The Gendered Nature of Natural Disasters.”

⁵¹⁹ Neumayer and Plümper, “The Gendered Nature of Natural Disasters.”

⁵²⁰ Ridhi Kashyap and Julia Behrman, “Gender Discrimination and Excess Female Under-5 Mortality in India: A New Perspective Using Mixed-Sex Twins,” *Demography* 57, no. 6 (September 25, 2020): 2143–67, <https://doi.org/10.1007/s13524-020-00909-0>; Krishnan, “Gender Inequity in Child Survival.”

⁵²¹ Sophie Harman, “Ebola, Gender and Conspicuously Invisible Women in Global Health Governance,” *Third World Quarterly* 37, no. 3 (March 10, 2016): 524–41, <https://doi.org/10.1080/01436597.2015.1108827>; Henrik Urdal and Chi Primus Che, “War and Gender Inequalities in Health: The Impact of Armed Conflict on Fertility and Maternal Mortality,” *International Interactions* 39, no. 4 (August 2013): 489–510, <https://doi.org/10.1080/03050629.2013.805133>.

gender inequality rise (Linkage 3.1.2.C; see also Table 10).⁵²² In many cases, the performance of cultural norms and ideologies (leading to higher DSR rates) may lead to direct increases in mortality rates among women. For instance, according to Hunter et al., norms against women learning to swim leave them more vulnerable to water-related disasters.⁵²³ Pittaway et al. find that the risk to women in such circumstances is even higher when combined with heavy and voluminous clothing that prevents women from being able to run to high places, climb trees, or swim, and when their clothing is removed during the crisis, women often refuse rescue offers from men or medical care by men in order to maintain their modesty (Linkage 3.1.2.D).⁵²⁴ Moreover, Neumayer and Plümper, posit that when the socioeconomic status of women is low, natural disasters kill more women and at younger ages indirectly at higher rates due to post-disaster events.⁵²⁵ [Notably, however, as discussed in the *Healthcare* section of this study, some disasters and contexts men’s mortality rates are higher than women’s.]

Some research also suggests that indirect consequences of damage to agriculture, public health systems, infrastructure, and the social order, result in a greater burden on the well-being of women (increased bodily depletion) over the entire disaster/conflict period due to increases in social reproductive labour.⁵²⁶ In particular, women tend to die

⁵²² Neumayer and Plümper, “The Gendered Nature of Natural Disasters”; “Gender Dimensions of Vulnerability to Climate Change in China” (UN Women, December 2016), <https://www2.unwomen.org/-/media/field%20office%20eseasia/docs/publications/2016/12/deliverable%207-english.pdf?v=1&d=20161208T095438>.

⁵²³ Lori M. Hunter et al., “Swimming and Gendered Vulnerabilities: Evidence from the Northern and Central Philippines,” *Society & Natural Resources* 29, no. 3 (2016): 380–85, <https://doi.org/10.1080/08941920.2015.1046097>.

⁵²⁴ Eileen Pittaway, Linda Bartolomei, and Susan Rees, “Gendered Dimensions of the 2004 Tsunami and a Potential Social Work Response in Post-Disaster Situations,” *International Social Work* 50, no. 3 (May 2007): 308–9, <https://doi.org/10.1177/0020872807076042>.

⁵²⁵ Neumayer and Plümper, “The Gendered Nature of Natural Disasters.”

⁵²⁶ Eric Neumayer and Thomas Plümper, “The Unequal Burden of War: The Effect of Armed Conflict on the Gender Gap in Life Expectancy,” *International Organization* 60, no. 3 (August 9, 2006): 723–54, <https://doi.org/10.1017/S0020818306060231>.

at higher rates in post-conflict (and post-disaster) situations because of indirect consequences such as poor sanitation, overcrowding, and poor living conditions; malnutrition; sexual disease; and obstetrical/pregnancy-related disease (Linkage 3.1.2.E).⁵²⁷

Furthermore, looking at the role DSR plays in women's life expectancies, a growing literature suggests climate change will intensify the devaluation of women's social reproduction labour, further amplifying impacts on women's health and wellbeing (and potentially *Life Expectancy*).⁵²⁸ At baseline, the social and political structures of power, and the economic effects of these structures (social reproduction of unpaid production), tend to privilege and benefit men (though as will be seen, not always), resulting in unequal life circumstances for women and men that in crisis may impact *Life Expectancy*. For instance, women often face both symbolic and material circumstances that diminish their life reserves. According to Estes, such circumstances may include denial of access to reproductive choice; affordable public benefits such as health care and safety-net programs; and lower or zero compensation for labour because of dichotomies that value masculinized labour and invisibilize feminized labour (Linkage 3.1.2.F).⁵²⁹ Barriers to accessing healthcare or safe havens are particularly troubling for women following natural disasters—in communities where women are forbidden to leave the house without a male family member, a shortage of 'appropriate' male family members (due to a disaster or conflict) may prevent women from traveling to obtain the public

⁵²⁷ Christin Marsh Ormhaug, Patrick Meier, and Helga Hernes, "Armed Conflict Deaths Disaggregated by Gender," PRIO Paper (Oslo: Peace Research Institute Oslo, 2009), <https://www.prio.org/publications/7207>.

⁵²⁸ Harman, "Ebola, Gender and Conspicuously Invisible Women in Global Health Governance"; Rai, Hoskyns, and Thomas, "Depletion and Social Reproduction."

⁵²⁹ Estes, "Women's Rights, Women's Status, Women's Resistance in the Age of Trump."

services they need to remain safe and healthy.⁵³⁰ These effects are even more profound for those experiencing intersectional challenges such as race, class, disability, and *Poverty*.⁵³¹

The devaluing of women's labour is also evident in the everyday invisibilizing of the impact of women's participation in neoliberal economies and the impact on their bodies.⁵³² As mentioned in several other places in this study, today's economies could not function without the social reproduction work carried out women, largely unpaid and devalued. A normal, baseline level of social reproductive work tends to wear women's bodies, and during crises, expectations on women to fill the gaps tend to increase significantly, putting even further strain on women to hold up the economy and their families. Elias and Rai show that in times of crisis, such as conflict and natural disasters, demand for women's social reproduction labour is intensified, leading to an increase in bodily harm.⁵³³ As Tanyag describes it,

Gaps in crisis responses and interventions ... suggest that survival and recovery are contingent on women's willingness to make the necessary sacrifices – subordinating their personal needs to that of the family, community, and the state. ... During times of crisis, there may be a widening of pre-existing gaps between the intensified provision of care and the contributions to sustain the very bodies that meet heightened care

⁵³⁰ Institute for Women's Policy Research, "Gender, Urbanization and Democratic Governance," White Paper (New York: Commissioned by the National Democratic Institute), 19, accessed February 14, 2022, <https://www.ndi.org/sites/default/files/Gender%20Urbanization%20and%20Local%20Governance%20White%20Paper.pdf>.

⁵³¹ Gorana Mlinarević et al., "A Feminist Perspective on Post-Conflict Restructuring and Recovery: The Study of Bosnia and Herzegovina" (Women's International League for Peace & Freedom, 2017), 9, <https://wilpf.org/wp-content/uploads/2017/08/Feminist-political-economy-ENG-FINAL.pdf>.

⁵³² Deepta Chopra and Caroline Sweetman, "Introduction to Gender, Development and Care," *Gender & Development* 22, no. 3 (October 29, 2014): 409–21, <https://doi.org/10.1080/13552074.2014.975486>; Barbara Sutton, *Bodies in Crisis: Culture, Violence, and Women's Resistance in Neoliberal Argentina* (New Brunswick: Rutgers University Press, 2010), <http://muse.jhu.edu/book/13608>.

⁵³³ Juanita Elias and Shirin Rai, "The Everyday Gendered Political Economy of Violence," *Politics & Gender* 11, no. 2 (June 2015): 424–29, <https://doi.org/10.1017/S1743923X15000148>.

demands precisely because this is when gendered expectations of altruism and self-sacrifice operate the most.⁵³⁴

The performance of social reproduction of culture and ideology, therefore, may deplete women's bodies before a crisis, increase the unpaid care and domestic work responsibilities after a crisis, and ultimately leave women physically less resilient to future crises (Linkage 3.1.2.G).

In addition to the direct climate-driven increases in girls' and women's mortality during climate crises and the increased burdens of social reproduction on women's bodies, SGBV should also be considered under the *Gender Equality-Security Mechanism of societal capacity*. As already discussed, climate crises may increase son preference practices, or result in higher mortality among women, either of which may cause an imbalance in the 'population sex ratio,' which is defined as the number of males for every 100 females in the population, and is determined by the sex ratio at birth, losses and gains through population movements, and differential mortality rates of the sexes at various ages.⁵³⁵ SGBV has been shown to increase in the presence of population sex ratios with a surplus of unmarried men.⁵³⁶ This may be because as women experience greater partner choice, jealous male partners may increase violence against their female partners to deter infidelity (Linkage 3.1.2.H).⁵³⁷ These findings, however, have been contested by Kaur et

⁵³⁴ Maria Tanyag, "Depleting Fragile Bodies: The Political Economy of Sexual and Reproductive Health in Crisis Situations," *Review of International Studies* 44, no. 4 (June 2018): 654–71, <https://doi.org/10.1017/S0260210518000128>.

⁵³⁵ Therese and Xing, "Abnormal Sex Ratios in Human Populations: Causes and Consequences."

⁵³⁶ Natalie Raaber, "The Impact of the Crisis on Women: Main Trends across Regions," Brief (Toronto: Association for Women's Rights in Development, 2010), 21, https://www.awid.org/sites/default/files/atoms/files/icw_trendsregions.pdf.

⁵³⁷ Sunita Bose, Katherine Trent, and Scott J. South, "The Effect of a Male Surplus on Intimate Partner Violence in India," *Economic and Political Weekly* 48, no. 35 (August 31, 2013): 53–61; Sofia Amaral and Sonia Bhalotra, "Population Sex Ratios and Violence Against Women: The Long-Run Effects of Sex Selection in India," *Institute for Social & Economic Research*, no. 2017–10 (October 2017), <https://doi.org/10.2139/ssrn.3055794>; Nadia Diamond-Smith and Kara Rudolph, "The Association between Uneven Sex Ratios and Violence: Evidence from 6 Asian Countries," *PLoS ONE* 13, no. 6 (June 1, 2018),

al. who find that as sex ratio rises are skewed in favour of men, crime rates tend to fall.⁵³⁸

As discussed more extensively in the *Poverty* and *Standard of Living* sections, SGBV can reduce a victim's ability to obtain economic prosperity, psychological well-being, and sufficient nourishment through food, thereby increasing women's overall climate *Susceptibility* (Linkage 3.1.2.I).

As the preceding analysis has demonstrated, during climate-related crises, women's life expectancies may be impacted along three pathways: through direct increases in mortality rates due to climate disasters and increased son preference practices, through bodily depletion due to increased UCDW/social reproduction expectations, and through population sex ratio changes that may increase rates of SGBV, lowering women's life reserves. With Forsberg and Olsson's rubric in mind, communities that fail to consider the gendered ways neoliberal economies and patriarchal households are structured are likely to overlook how these expectations shrink women's life expectancies, ultimately diminishing social resources and networks, leading to less stable and safe communities. Gender transformative approaches must address gendered power imbalances (especially those that increase women's unpaid work, while exposing them to higher rates of SGBV) and economic systems that devalue social reproductive work.

3.1.2.2. Life Expectancy and National/International Security

Within the *National/International Security* context, little is yet understood about whether climate-induced changes to *Life Expectancy* contribute to *interstate tensions* or

<https://doi.org/10.1371/journal.pone.0197516>; Stewart J. D'Alessio and Lisa Stolzenberg, "The Sex Ratio and Male-on-Female Intimate Partner Violence," *Journal of Criminal Justice* 38, no. 4 (2010): 555–61, <https://doi.org/10.1016/j.jcrimjus.2010.04.026>.

⁵³⁸ Ravinder Kaur et al., "Sex Ratio Imbalances and Crime Rates" (United Nations Population Fund, April 2016), <https://india.unfpa.org/sites/default/files/pub-pdf/Sex%20Ratio%20Imbalances%20and%20Crime%20Rates.pdf>.

anti-state grievances. However, given the direct connections between *Life Expectancy* and the potential for generating surplus males within a system, further exploration of the *Gender Equality-Security Mechanisms of SD-urban surplus males-state-based conflict / SD-surplus males-non-state conflict* is warranted as an aspect of the GCS-Factor *Life Expectancy's National/International Security* outcomes.⁵³⁹ According to Forsberg and Olsson, when a substantial young male surplus (often due to a strong, persistent son preference) in an *urban* environment (with strong family or tribal networks for recruitment), the gender inequality and *state-based* violence connection is strong. In *non-state* violence, Forsberg and Olsson suggest a young male surplus has a similar effect in both urban or rural conditions, suggesting an increased likelihood of low-scale, localized non-state violence and riots in rural and urban settings (where family/kin ties ease recruitment). With this in mind, the following brief analysis will look at connections between *Life Expectancy* in the *National/International Security* context.

Briefly first, however, a review of *Life Expectancy* in the *Gendered Climate-Security Lifecycle* must first address how climate change and climate-related conflict are likely to impact the life expectancies of girl children and adult women, and therefore population sex ratios.⁵⁴⁰ Should practices such as sex selective abortion or son preferences decrease the life expectancies of girl children, population sex ratios may become skewed

⁵³⁹ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including one of three '*socioeconomic development*' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*'). For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's '*Intermediary Mechanisms*' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

⁵⁴⁰ Valerie M. Hudson and Andrea M. den Boer, "Missing Women and Bare Branches: Gender Balance and Conflict," Commentary, *Population and Conflict: Exploring the Links* (The ECSP Report, 2005), <https://www.wilsoncenter.org/sites/default/files/media/documents/publication/Hudson%2526denBoer.pdf>.

toward men (Linkage 3.1.2.J). Similarly, should the direct (Linkage 3.1.2.K) or indirect (Linkage 3.1.2.L) impacts of climate disasters increase the mortality rate among either women or men, this, too, may lead to measurable changes to population sex ratios. In any of these cases, it may be fruitful to conduct research to explore whether *SD-urban surplus males-state-based conflict* / *SD-surplus males-non-state conflict* may increase political instability or lead to increased rates of crime, violence, and conflict.

A factor that may counteract a climate-caused male surplus is the fact that, during climate-related disasters, men's bodies also experience greater exposure to waterborne and vector-borne diseases and higher rates of heatstroke because of their work outside of the home (Linkage 3.1.2.M).⁵⁴¹ Additionally, men have been shown to die more frequently than women during armed conflict such as through battle-related deaths; suicide and self-inflicted injury; homicide and purposeful injury inflicted by another; mental disorders; and other violence.⁵⁴² As such, population sex ratios may be impacted in unique ways in each context, and should be examined locally to determine what, if any, a sex ratio imbalance might impact the political stability of a community or its women.

Looking next at *crime/violence/extremism* and *grievances between societal groups*, there are contested findings from a variety of disciplines (psychology, biology, demography, sociology). On the one hand, there are findings that support predictions that male-skewed populations increase rates of violence. Some scholars, including Hvistendahl, Hudson, and den Boer, argue that if the population sex ratio skews toward men, leaving more men without partners, competition between men may lead to increased

⁵⁴¹ Sogani, "Gender Approaches in Climate Compatible Development," 20.

⁵⁴² Marsh Ormhaug, Meier, and Hernes, "Armed Conflict Deaths Disaggregated by Gender."

male-on-male violence, especially when men lack stable social bonds.⁵⁴³ This may be due in part to the fact that testosterone concentrations tend to fall in men who are fathers or in stable marriages or cohabitation relationships, thereby reducing both violent and non-violent criminal offending among men with partners or children.⁵⁴⁴ Research by Brooks shows that rates of local warfare, crime, drug abuse, prostitution, and trafficking of women, and other forms of political instability increased in Asia as a result of a lower number of women in the population (Linkage 3.1.2.M).⁵⁴⁵ Contradictorily, some research has shown that female scarcity may *decrease* rates of male violence. Schacht et al. find that, in situations with “male-biased sex ratios, men are more likely to marry, be part of a family, and be sexually committed to a single partner when women are in short supply.”⁵⁴⁶ In partner market theory, crime and violence rates may fall because the more numerous sex is required to exhibit traits desired by potential partners; in male-skewed sex ratio scenarios in which females tend to prefer men interested in long-term mating, males will generally avoid male-to-male violence.⁵⁴⁷

⁵⁴³ Mara Hvistendahl, *Unnatural Selection: Choosing Boys over Girls, and the Consequences of a World Full of Men* (Public Affairs, 2011); Valerie M. Hudson and Andrea den Boer, *Bare Branches: The Security Implications of Asia's Surplus Male Population* (Cambridge, MA, USA: MIT Press, 2004), <http://mitpress.mit.edu/catalog/item/default.asp?type=2&tid=9963>.

⁵⁴⁴ Robert J. Sampson, John H. Laub, and Christopher Wimer, “Does Marriage Reduce Crime? A Counterfactual Approach to Within-Individual Causal Effects*,” *Criminology* 44, no. 3 (2006): 465–508, <https://doi.org/10.1111/j.1745-9125.2006.00055.x>; Torbjørn Skardhamar et al., “Does Marriage Reduce Crime?,” *Crime and Justice* 44 (2015): 385–446, <https://doi.org/10.1086/681557>; Gettler Lee T. et al., “Longitudinal Evidence That Fatherhood Decreases Testosterone in Human Males,” *Proceedings of the National Academy of Sciences* 108, no. 39 (September 27, 2011): 16194–99, <https://doi.org/10.1073/pnas.1105403108>.

⁵⁴⁵ Robert Brooks, “‘Asia’s Missing Women’ as a Problem in Applied Evolutionary Psychology?,” *Evolutionary Psychology* 10, no. 5 (December 20, 2012): 910–25, <https://doi.org/10.1177/147470491201000512>.

⁵⁴⁶ Ryan Schacht, Doug Tharp, and Ken Smith, “Marriage Markets and Male Mating Effort: Violence and Crime Are Elevated Where Men Are Rare,” *Human Nature* 27 (December 2016): 489–500, <https://doi.org/10.1007/s12110-016-9271-x>.

⁵⁴⁷ Ronald Noë, “Local Mating Markets in Humans and Non-Human Animals,” *Behavioral Ecology and Sociobiology* 71, no. 10 (September 15, 2017): 1–18, <https://doi.org/10.1007/s00265-017-2376-3>; Ryan Schacht, Kristin Liv Rauch, and Monique Borgerhoff Mulder, “Too Many Men: The Violence Problem?,” *Trends in Ecology & Evolution* 29, no. 4 (April 1, 2014): 214–22,

On the other hand, female-skewed sex ratios may also result in higher rates of crime and grievances between groups. Barber's research shows that rates of violence decrease with female-skewed sex ratios through different mechanisms: for instance, violence may increase as men vie with one another to increase their own desirability to women; and in societies where women engage in casual or cohabitating relationships, resulting in later establishment of stable marriages and higher rates of single parenthood, men may engage in greater mating effort and thus generate higher rates of violence.⁵⁴⁸

Evidently, there remains a debate regarding the strength of evidence for the impact of sex ratio imbalances on rates of violence.⁵⁴⁹ Filser et al. have attempted to provide clarity by analyzing individual-level, longitudinal data, and have found that at one level, the 'more-men-more-violence' hypothesis holds true, with a somewhat weak positive association for 'male-on-female violence,' and a stronger association for 'male-on-male violence,' particularly for unmarried men competing for partners, however they note that more research is required.⁵⁵⁰ They also suggest that confounding variables such as socioeconomic deprivation and sex-selective out-migration may drive the association.⁵⁵¹ Consequently, sex ratios should be considered and analyzed with local cultural and demographic data in mind to determine whether a system is particularly vulnerable to climate-driven gender imbalances and changes in violence rates.

<https://doi.org/10.1016/j.tree.2014.02.001>; Schacht, Tharp, and Smith, "Marriage Markets and Male Mating Effort."

⁵⁴⁸ Nigel Barber, "From Steroids to Nation States: An Integrated Evolutionary Approach to Violent Crime," *Aggression and Violent Behavior* 14, no. 5 (September 2009): 415–22, <https://doi.org/10.1016/j.avb.2009.06.011>.

⁵⁴⁹ Sebastian Schnettler and Andreas Filser, "Social Outcomes and Sex Ratio," in *Encyclopedia of Evolutionary Psychological Science*, ed. Todd K. Shackelford and Viviana A. Weekes-Shackelford (Cham: Springer International Publishing, 2020), 1–4, https://doi.org/10.1007/978-3-319-16999-6_2022-1.

⁵⁵⁰ Andreas Filser et al., "Are Skewed Sex Ratios Associated with Violent Crime? A Longitudinal Analysis Using Swedish Register Data," *Evolution and Human Behavior* 42, no. 3 (May 2021): 212–22, <https://doi.org/10.1016/j.evolhumbehav.2020.10.001>.

⁵⁵¹ Filser et al., "Are Skewed Sex Ratios Associated with Violent Crime?"

3.1.2.3. Summary of Gender-Climate-Security and Life Expectancy

A summary visualizing Gender-Climate-Security connections to *Life Expectancy* can be found in Figure 16. A list of Diagnostic Questions in Table 56 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

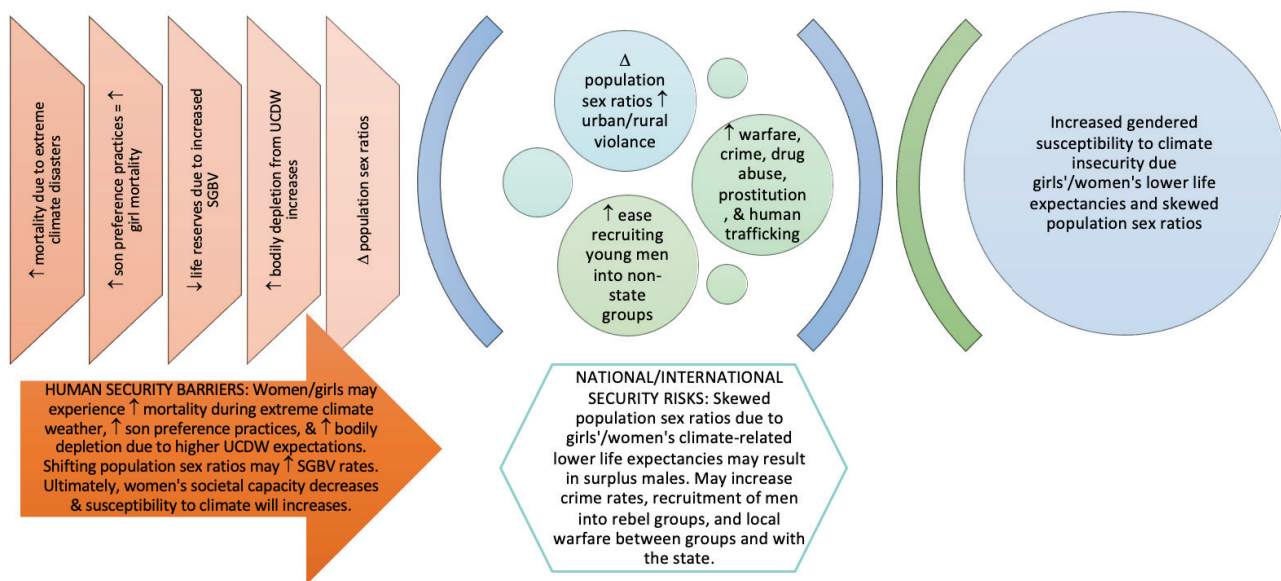


Figure 16. Gendered Climate Security Vulnerabilities in Life Expectancy.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Life Expectancy.

3.1.3. Education

Table 28. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Education.

<p>Dominant Approach: Measures gross school enrollment ratios, which are the ratios of total enrollment (in either primary or secondary education, regardless of age) to the population of the age group in that level of education. “Primary education provides children with basic reading, writing, and mathematics skills along with an elementary understanding of such subjects as history, geography, natural science, social science, art, and music.”⁵⁵² “Secondary education completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development, by offering more subject- or skill-oriented instruction using more specialized teachers.”⁵⁵³</p>
<p>FPEcon/FPEcol Approach: A climate security framework that fails to consider the gendering of educational spaces and outcomes would be incomplete. FPEcon’s and SRF’s focus on the gendered nature of structures and institutions that determine whether a system achieves equitable education levels for all genders offers a more nuanced way to examine the role education of children and adults plays in increasing or decreasing climate security. Backer and Cairns argue that an integrated approach to SRF examines what types of social reproduction (“feeding, clothing, cleaning, socializing, transporting”) are necessary to make schooling possible, as well as how educational systems replicate the hierarchies and structures of patriarchal/capitalist systems.⁵⁵⁴ The implications for women are explained by Blackmore this way: “Maintaining the ‘gender order’, in many instances, is equated variously to protecting tradition, culture and religion, which inevitably means protecting male dominance, particularly in more traditional religious societies.”⁵⁵⁵ Understood as such, the link between education and climate security is not only about education <i>rates</i>, but also about <i>how</i> educational systems reinforce and reproduce structures of oppression.</p>

Brief comparison of dominant and feminist definitions of Education.

⁵⁵² “School Enrollment, Primary (% Gross),” The World Bank, accessed April 1, 2022, <https://data.worldbank.org/indicator/SE.PR.M.ENRR>.

⁵⁵³ “School Enrollment, Secondary (% Gross),” The World Bank, accessed April 1, 2022, <https://data.worldbank.org/indicator/SE.SEC.ENRR>.

⁵⁵⁴ David I. Backer and Kate Cairns, “Social Reproduction Theory Revisited,” *British Journal of Sociology of Education* 42, no. 7 (July 27, 2021): 1095, <https://doi.org/10.1080/01425692.2021.1953962>.

⁵⁵⁵ Jill Blackmore, “Gender Inequality and Education: Changing Local/Global Relations in a ‘Post Colonial’ World and the Implications for Feminist Research,” *Educational Practice and Theory* 33, no. 1 (2011): 55.

Table 29. Short Overview of the Education Gender-Climate-Security Linkages.

Human Security⁵⁵⁶	Gender Equality-Security Mechanisms
Linkage 3.1.3.A. Lack of education reduces women's economic stability → climate-related shocks may limit availability of education (due to damage to infrastructure, teacher losses, psychological distress) → women may have fewer resources for weathering future climate shocks	<i>Societal capacity</i>
Linkage 3.1.3.B. Low education levels may result in higher fertility rates → may produce larger families → with fewer resources, childhood and maternal health may suffer → women may be unable to take advantage of climate adaptation resources due to economic and time constraints → women's overall susceptibility to climate risks is amplified	<i>Societal capacity</i>
Linkage 3.1.3.C. Climate change stressors may reduce household income → families may prioritize boys' education if budgets are tight → girls' susceptibility to climate risks against future shocks will be lowered	<i>Societal capacity</i>
Linkage 3.1.3.D. Climate breakdown may strain household resources → families may cope by having girls/women increase unpaid social reproduction responsibilities (helping sick or injured, collecting water/fuel, caring for children) → women have less time for education	<i>Societal capacity</i>
Linkage 3.1.3.E. Climate shocks may prompt households to use relocation as an adaptation strategy → education opportunities in new locations may be limited → if choices for which family members access education are limited, gender norms are likely to prioritize boys/men	<i>Societal capacity</i>
Linkage 3.1.3.F. Climate change may reduce government budgets → governments that view education as a public good (and not useful for market production) are likely to make cuts to education → where gender norms are conservative, such cuts are more likely to negatively impact women's and girls' education access	<i>Societal capacity</i>

⁵⁵⁶ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security⁵⁵⁶	Gender Equality-Security Mechanisms
Linkage 3.1.3.G. Climate breakdown may hinder delivery of climate adaptation education → gender norms may prioritize men/boys for learning climate adaptation skills → women may be less prepared for further climate breakdown	<i>Societal capacity</i>
Linkage 3.1.3.H. Gendered norms may prevent women from partaking in climate-related skill development → community climate-adaptation programs may achieve lower success without women's participation → communities may be less resilient to further climate breakdown	<i>Societal capacity</i>
Linkage 3.1.3.I. Climate adaptation training may specify the prioritization of gender and racial/ethnic minorities → men may have a difficult time accessing climate adaptation skill development and/or funding → men's susceptibility to climate risks may be amplified	<i>Societal capacity</i>
Linkage 3.1.3.J. Climate disasters may strain household resources → families may choose to send their girls into child marriage (at younger ages) as an adaptation strategy → girls' coping capacities will be severely limited (due to mutually exclusive nature of marriage and school and lower non-domestic skill, confidence, and network acquisition) → likely to reinforce gender inequalities by reducing the cultural transformation achieved by having girls in school	<i>Societal capacity</i>
Linkage 3.1.3.K. Education may be used to perpetuate unequal gender norms, especially to men/boys → men/boys may adopt patriarchal attitudes toward gender roles and equality → may increase rates of SGBV and other violence	<i>Societal capacity</i>
Linkage 3.1.3.L. Climate change may lower the quality and availability of educational opportunities, including for men and boys → men and boys may achieve low levels of education → may encourage men and boys to support female genital mutilation/circumcision and other discriminatory practices → men and boys may believe violence is the only way to address conflict → rates of SGBV may increase	<i>Societal capacity</i>

National/International Security⁵⁵⁷	Pathway	Motivational Mechanisms
Linkage 3.1.3.M. Local gender norms may define masculinity in terms of higher intelligence than women → climate change may limit access to educational opportunities → men and boys may be unable to perform their masculine roles (higher intelligence) → criminality may increase among men and boys	Crime/violence/extremism	[Requires research] <i>Fundamentalist ideologies or pull of networks</i> (among men) [∅]
Linkage 3.1.3.N. Climate change may strain government budgets for education → denial of education may be used as a weapon of war against some groups → tensions between groups may increase	Grievances between societal groups	[Requires research] <i>Avoid abuse</i> (typically women), [∅] <i>exposure to violence/repression</i> (typical groups), <i>fundamental ideology</i> (both) [∅]
Linkage 3.1.3.O. Climate breakdown may strain tensions between groups → the government may use education as a wedge issue to garner support from ideologically aligned groups → may increase tensions between groups	Grievances between societal groups	[Requires research] <i>Avoid abuse</i> (typically women), [∅] <i>exposure to violence/repression</i> , <i>pull of networks</i> , <i>revenge</i> (typically men), [∅] <i>fundamental ideology</i> (both) [∅]
Linkage 3.1.3.P. Climate breakdown may amplify tensions between groups → education systems may be used to perpetuate othering philosophies via ethnocide (rob minority groups of their language, traditions, cultural values), or by manipulating history, instilling authoritarian/chauvinistic values/identities, stoking fundamentalization of national identities → may trigger open violence/conflict	Grievances between societal groups	[Requires research] <i>Pull of networks</i> , <i>revenge</i> (typically men), [∅] and <i>fundamental ideology</i> (both) [∅]

⁵⁵⁷ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security⁵⁵⁷	Pathway	Motivational Mechanisms
<p>Linkage 3.1.3.Q. Though climate change may amplify anti-state grievances and intra-state tensions → governments can choose to prioritize and fund educational systems → can demonstrate to the public that the government is attempting to improve lives → may lower tension levels</p>	<p>Prevention of: Anti-state grievances // Grievances between societal groups</p>	<p>[Requires research] May nullify <i>avoid abuse</i> (typically women),[∅] <i>exposure to violence/repression</i>, <i>pull of networks</i>, <i>revenge</i> (typically men),[∅] and <i>fundamental ideology</i> (both)[∅]</p>
<p>Linkage 3.1.3.R. Though climate change may increase all types of intra- and inter-state tensions → governments and NGOs can invest in peacebuilding education programs → may give people tools to resolve disputes peacefully → may increase stability</p>	<p>Prevention of: Anti-state grievances // Grievances between societal groups // Interstate tensions</p>	<p>[Requires research] May nullify <i>avoid abuse</i> (typically women),[∅] <i>exposure to violence/repression</i>, <i>pull of networks</i>, <i>revenge</i> (typically men),[∅] and <i>fundamental ideology</i> (both)[∅]</p>
<p>Linkage 3.1.3.S. Though climate change may threaten education for women → governments and NGOs can choose to prioritize peacebuilding skills for women → women may be more likely to be involved in peacemaking discussions → has been shown to increase durability and length of peace agreements</p>	<p>Prevention of: Anti-state grievances // Grievances between societal groups // Interstate tensions</p>	<p>May nullify <i>pull of networks</i>[§] and <i>revenge</i>[§] (typically men), and <i>fundamental ideology</i>[§] (both)</p>

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with a §; those with no research with ∅. For a full explanation of each Linkage, see sections 3.1.3.1 and 3.1.3.2.

3.1.3.1. Education and Human Security

Education is an extremely important factor for the climate security of girls and women. As *Education* rates increase, so do girls' and women's chances of breaking free of restrictive gender inequalities, allowing them to achieve higher levels of human and climate security against shocks such as natural disasters. As Bargawi suggests, *Education*, "enhances future output and human well-being directly through creating and maintaining what some economists call 'human capital.'"⁵⁵⁸ Yet traditional gender hierarchies often erect significant barriers that make gender equality within educational systems difficult or impossible to achieve, suggesting that the *societal capacity Gender Equality-Security Mechanism* is particularly relevant when looking at how climate-impacted *Education* systems may contribute to higher rates of political instability and conflict.⁵⁵⁹ The ensuing discussion will focus on several ways climate change will complicate *Education* for girls and women, and lower their climate security overall.⁵⁶⁰ First, this analysis will examine how climate change is likely to lower educational opportunities due to impacts at household and community levels. Second, gender inequalities in adult *Education* systems may limit women's uptake of climate adaptation and resilience training. Third, *Education* may be a venue by which gender inequalities are

⁵⁵⁸ Hannah Bargawi, Giovanni Cozzi, and Susan Himmelweit, eds., *Economics and Austerity in Europe: Gendered Impacts and Sustainable Alternatives*, 1st ed. (London: Routledge, 2016), 20, <https://doi.org/10.4324/9781315627762>.

⁵⁵⁹ Human Security Gender-Climate-Security Linkages are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including societal capacity, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment'). UN Women, *The UN Women Gender and Economics Training Manual*, 2017, 30,44, <https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2017/UN-Women-gender-and-economics-training-manual-en.pdf>.

⁵⁶⁰ Kate Sims, "Education, Girls' Education and Climate Change," Emerging Issues (Education Development Trust, March 2021), 14, https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/16523/EIR_29_Education_Girls%27_Education_and_Climate_Change.pdf?sequence=1&isAllowed=y.

either transformed or reinforced, thereby being a primary method by which to increase women's climate security.

At baseline, *before* climate breakdown has an impact on educational systems, there are often significant obstacles to girls' school retention rates. These include female genital cutting (also referred to as female mutilation and circumcision), household responsibilities, absence of gender-specific toilets, lack of menstruation support and supplies, and son preference where funds for *Education* are limited.⁵⁶¹ Additionally, gendered violence is often prevalent in schools, making them unsafe especially for girls, LGBTQI+ students, and racial minority children.⁵⁶² Not surprisingly then, though the *Education* of girls and women has seen improvement globally since the 1990s, gender disparities in low-income countries remain high, with only 20% of girls achieving parity in primary *Education*, 10% in secondary *Education*, and 8% in tertiary *Education*.⁵⁶³

For women, achieving higher levels of *Education* is critically important to achieving economic stability and therefore climate security. *Education* offers a way to enhance women's capabilities and is a means of empowerment by allowing greater participation in the paid economy, while also transforming unpaid work into paid work for many women (Linkage 3.1.3.A).⁵⁶⁴ Additionally, research by Klasen and others has shown that *Education* equality promotes economic growth by increasing human capital,

⁵⁶¹ Jerker Edström et al., *EMERGE Engendering Men: A Collaborative Review of Evidence on Men and Boys in Social Change and Gender Equality* (Brighton: Institute of Development Studies, 2015), 55, <https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/7059/EMERGE.pdf?sequence=1>.

⁵⁶² Edström et al., *EMERGE Engendering Men*, 58.

⁵⁶³ Edström et al., *EMERGE Engendering Men*, 54.

⁵⁶⁴ Lourdes Benería, Günseli Berik, and Maria S. Floro, *Gender, Development, and Globalization: Economics as If All People Mattered*, 2nd ed. (New York: Routledge, 2015), 3, <https://doi.org/10.4324/9780203107935>.

while lowering mortality and fertility.⁵⁶⁵ Greater economic security increases the resources and assets a woman has, making weathering a climate shock much easier.⁵⁶⁶ Moreover, higher *Education* rates among girls and women (in 141 countries) has been shown by Götmark and Andersson to have the strongest inverse relationship to fertility rates, stronger than GDP per capita, contraceptive prevalence rate, and religiosity.⁵⁶⁷ Lower fertility rates improve childhood and maternal health, allow women to take greater advantage of adaptation resources, and produce smaller families which have fewer demands for climate-sensitive resources like food and water (Linkage 3.1.3.B).⁵⁶⁸ Gender equality within schools therefore has a profound impact on women's economic *Susceptibility* to climate risks across numerous functional areas of life.

The first way climate change is expected to impact schooling is through reductions in the delivery of *Education*, which may amplify many existing gender inequalities, resulting in a more profound impact on girls' and women's educational access and therefore their *societal capacity*. At the household level, climate change stressors may reduce rural and urban livelihood incomes, consequently curtailing investments in the *Education* of girl children, especially where son preference practices are common (Linkage 3.1.3.C).⁵⁶⁹ As already discussed, disasters often increase social reproduction responsibilities by expecting women and girls to spend more of their time on care and household responsibilities, such as helping injured or sick family members,

⁵⁶⁵ S. Klasen, "Low Schooling for Girls, Slower Growth for All? Cross-Country Evidence on the Effect of Gender Inequality in Education on Economic Development," *The World Bank Economic Review* 16, no. 3 (December 1, 2002): 345–73, <https://doi.org/10.1093/wber/lhf004>.

⁵⁶⁶ Klasen, "Low Schooling for Girls, Slower Growth for All?"

⁵⁶⁷ Frank Götmark and Malte Andersson, "Human Fertility in Relation to Education, Economy, Religion, Contraception, and Family Planning Programs," *BMC Public Health* 20, no. 1 (February 22, 2020): 1–17, <https://doi.org/10.1186/s12889-020-8331-7>.

⁵⁶⁸ Mogelgaard and Patterson, "Building Resilience through Family Planning and Adaptation Finance."

⁵⁶⁹ "Global Education Monitoring Report 2020: Gender Report, A New Generation: 25 Years of Efforts for Gender Equality in Education" (UNESCO, 2020), <https://unesdoc.unesco.org/ark:/48223/pf0000374514>.

collecting water and firewood, and caring for children, all of which may reduce school retention rates among girls and women (Linkage 3.1.3.D).⁵⁷⁰ Additionally, if climate crises (including climate-fueled conflict) result in household displacement, lack of educational facilities and resources are likely to severely hinder school enrolment and academic attainment, often primarily for girls and women (Linkage 3.1.3.E).⁵⁷¹ In Nepal, for instance, civil war prompted many young people to abandon their educational endeavours in order to migrate to find work elsewhere.⁵⁷²

At the community level, climate-related disasters may damage school infrastructure, lead to teacher losses, and cause psychological distress, with the impact particularly severe as death tolls rise, especially for those living in *Poverty*.⁵⁷³ Disease outbreaks, malnutrition due to *Food Insecurity*, and loss of *WASH Infrastructure* at school facilities also hinder attendance.⁵⁷⁴ Additionally, governments may impose austerity measures during crises, thereby decreasing investments in public services such as *Education*, especially when *Education* is classified as a public consumption good and not something that creates assets that contribute to the production of future economic

⁵⁷⁰ Ellen Chigwanda, “A Framework for Building Resilience to Climate Change through Girls’ Education Programming,” Policy Brief (Center for Universal Education at Brookings, December 2016), 4, <https://www.ungei.org/sites/default/files/Building-Resilience-Climate-Change-through-Girls-Education-2016-eng.pdf>.

⁵⁷¹ “The Impact of Climate Displacement on the Right to Education,” Working Paper on Education Policy (France: UN Educational, Scientific and Cultural Organization, 2020), <https://unesdoc.unesco.org/ark:/48223/pf0000374966/PDF/374966eng.pdf.multi>.

⁵⁷² Andrea J. Nightingale, “Power and Politics in Climate Change Adaptation Efforts: Struggles over Authority and Recognition in the Context of Political Instability,” *Geoforum* 84 (August 2017): 11–20, <https://doi.org/10.1016/j.geoforum.2017.05.011>.

⁵⁷³ Lois Onigbinde, “The Impacts of Natural Disasters on Educational Attainment: Cross-Country Evidence from Macro Data” (Master’s Thesis, The University of San Francisco, 2018); Vidya Diwakar et al., “Child Poverty, Disasters and Climate Change” (Chronic Poverty Advisory Network, March 2019).

⁵⁷⁴ Carolyn Kousky, “Impacts of Natural Disasters on Children,” *The Future of Children* 26, no. 1 (2016): 73–92, <https://doi.org/10.1353/foc.2016.0004>.

outputs.⁵⁷⁵ Such cutbacks often disproportionately impact women and girls (Linkage 3.1.3.F).⁵⁷⁶

Looking beyond standard primary and secondary *Education* curricula, learning climate adaptation techniques and approaches in particular will be extremely important to enhancing women's *societal capacity*, but ironically, climate change may have direct impacts on the delivery of this type of learning as well. The effect of lost *Education* due to a changing climate is particularly profound when gender norms that prioritize boys' and men's *Education* hinders women from learning climate adaptation skills, such as climate-smart agriculture (Linkage 3.1.3.G).⁵⁷⁷ *Education* (particularly that of women and girls) has been identified as a highly effective strategy for reducing climate emissions and for increasing climate adaptability.

Not only are education levels correlated with increased adaptive capacity and reduced risk to climate-related disasters—especially for women—but education also promises to increase the knowledge, skills, and attitudes necessary to mitigate against further environmental damage. Studies show that there is a strong positive correlation between education, concern for the environment, and the kinds of skills (e.g., problem solving and critical thinking) and behaviors (e.g., signing petitions or participating in demonstrations) that support policies or political decisions that have a positive impact on the environment.⁵⁷⁸

Specifically, Streissnig et al. and Blankespoor et al. have identified the most important *Socioeconomic* factor for reducing *Susceptibility* to extreme weather events as girls' and women's secondary *Education*.⁵⁷⁹ As such, it may be true that as women are denied

⁵⁷⁵ Bargawi, Cozzi, and Himmelweit, *Economics and Austerity in Europe*, 21.

⁵⁷⁶ Bargawi, Cozzi, and Himmelweit, *Economics and Austerity in Europe*, 6.

⁵⁷⁷ Aastha Bhusal, Lakpa Sherpa, and Laxman Khatri, "Climate-Smart Agriculture Takes off, Thanks to 'women-Friendly' Tools and a Gender-Smart Approach" (CDKN: Laxman Khatri's Lab, September 2020).

⁵⁷⁸ Christina Kwauk, "Roadblocks to Quality Education in a Time of Climate Change," Brief (Center for Universal Education at Brookings, February 2020), 2, <https://www.brookings.edu/wp-content/uploads/2020/02/Roadblocks-to-quality-education-in-a-time-of-climate-change-FINAL.pdf>.

⁵⁷⁹ Erich Striessnig, Wolfgang Lutz, and Anthony G. Patt, "Effects of Educational Attainment on Climate Risk Vulnerability," *Ecology and Society* 18, no. 1 (February 5, 2013): 1–16, <https://doi.org/10.5751/ES->

climate adaptation skill development, whole communities may suffer from inadequate preparation and adaptation (Linkage 3.1.3.H). Depending on the context, constrained climate-related *Education* facilities and resources may also impact men: Nightingale found that men may find that accessing climate adaptation programming and funds is challenging given the prioritization of marginalized groups, such as women (Linkage 3.1.3.I).⁵⁸⁰

In addition to direct impacts, climate-caused disasters are also likely to have indirect impacts on girls' and women's *Education*, further intensifying their climate *Susceptibility* to climate risks (i.e. the *societal capacity Gender Equality-Security Mechanism*). For instance, McLeod et al. have found that natural disasters such as floods, hurricanes, droughts, and tornadoes tend to increase child marriage rates and decrease child marriage ages, which is likely to take girls out of school.⁵⁸¹ When combined, child marriage and lack of *Education* have a significant impact on girls' *Human Security*. In a meta-study by Malhotra and Elnakib, girls' *Education* was found to have a strong and consistent inverse relationship with child marriage.⁵⁸² Several factors are likely responsible, with three standing out as reinforcing institutions of oppression: being in school and early marriage may be mutually exclusive; skill, confidence, and network acquisition may offer non-domestic opportunities; and a critical mass of girls going to

05252-180116; Brian Blankespoor et al., "Adaptation to Climate Extremes in Developing Countries : The Role of Education" (Washington, DC: World Bank Group: eLibrary, June 2010), <https://doi.org/10.1596/1813-9450-5342>.

⁵⁸⁰ Nightingale, "Power and Politics in Climate Change Adaptation Efforts."

⁵⁸¹ Christie McLeod, Heather Barr, and Katherina Rall, "Does Climate Change Increase the Risk of Child Marriage? A Look at What We Know--And What We Don't--With Lessons from Bangladesh & Mozambique," *Columbia Journal of Gender and Law* 38, no. 1 (2019): 115, <https://doi.org/10.7916/cjgl.v38i1.4604>.

⁵⁸² Anju Malhotra and Shatha Elnakib, "20 Years of the Evidence Base on What Works to Prevent Child Marriage: A Systematic Review," *Journal of Adolescent Health* 68, no. 5 (May 1, 2021): 847–62, <https://doi.org/10.1016/j.jadohealth.2020.11.017>.

school may create social norm change (Linkage 3.1.3.J).⁵⁸³ In general, boys do not suffer the same levels of discrimination and harm due to gendered educational systems.

Looking at boys' *Education*, while boys may demonstrate educational underachievement due to gender norms (such as academics being considered anti-masculine) in some regions, this generally has not hindered their economic or political success.⁵⁸⁴

Finally, *Education* may be a venue by which gender inequalities are either transformed or reinforced. If curricula are designed to reform girls' and boys' concepts of gender relations, *Education* may be a primary pathway to increasing girls' and women's climate security. Here Forsberg and Olsson's *norms Gender Equality-Security Mechanism* may be relevant. Though in their study *gendered norms* did not show significant promise as a security mechanism, if *gendered norms* play a role anywhere in the *Gendered Climate-Security Lifecycle*, it would be through the *Education* GCS-Factor. Crucially, according to Durrani and Dunne, in communities where educational curricula espouses patriarchal and masculinized understandings of gender norms, the *Education* of boys and men may influence how those men and boys interact with and treat women, and therefore has a direct impact on the safety and security of girls and women.⁵⁸⁵ According to Edström et al., men's educational attainment has been found to be a key factor in forecasting men's attitudes toward gender roles and equality; those with lower *Education* tend to have more rigid attitudes and are more likely to be perpetrators of SGBV under the mistaken belief that violence is the way to end conflicts (Linkage 3.1.3.K).⁵⁸⁶ As in other GCS-Factors, communities often revert to more conservative norms and ideas when

⁵⁸³ Malhotra and Elnakib, "20 Years of the Evidence Base on What Works to Prevent Child Marriage."

⁵⁸⁴ Edström et al., *EMERGE Engendering Men*, 55.

⁵⁸⁵ Naureen Durrani and Máiréad Dunne, "Curriculum and National Identity: Exploring the Links between Religion and Nation in Pakistan," *Journal of Curriculum Studies* 42, no. 2 (2010): 232–33.

⁵⁸⁶ Edström et al., *EMERGE Engendering Men*, 61.

under stress of shocks such as climate breakdown or disasters, suggesting this kind of ideology may become more common as climate change intensifies. Similarly, Marcus and Harper find that men with higher levels of *Education* are less likely to support gender-based violence such as female genital mutilation and circumcision or condone SGBV; experience less anxiety and depression; engage less with alcohol abuse and delinquency; and are less likely to engage in violence or be imprisoned (Linkage 3.1.3.L)—all factors which may help to stabilize communities.⁵⁸⁷ As in nearly all gender-climate-security challenges, gender transformational work at the fundamental level of *norms* would be the most direct way to improve women's climate security in such communities. However, should climate change damage gender transformative educational programs, gains in gender equality may also be lost as climate breakdown intensifies.

As the preceding analysis has shown, *Education* is pivotally important for ensuring girls' and women's climate security. Applying Forsberg and Olsson's theory, without investments in girls'/women's *Education*, overall social resources and networks will be diminished, possibly limiting a community's choices for resolving conflict in the future. Through infrastructure destruction, loss of teachers, and trauma, climate crises are likely to increase the barriers and challenges to offering *Education* to both children and adults. In particular, climate breakdown may impact girls and women more than boys and men and is likely to threaten increases in gender inequality, especially if finances of households and communities are stretched, and social reproductive responsibilities of

⁵⁸⁷ Rachel Marcus and Caroline Harper, "Gender Justice and Social Norms - Processes of Change for Adolescent Girls: Towards a Conceptual Framework," Research Report (London: Overseas Development Institute, 2014), <https://gsdrc.org/document-library/gender-justice-and-social-norms-processes-of-change-for-adolescent-girls-towards-a-conceptual-framework/>.

girls and women increase. Gender transformative approaches, however, can counter the impacts of climate change on gender equity—well-designed curricula combined with keeping girls in school (in part by eschewing child marriage) can be powerful tools for improving community stability in the face of future crises.

3.1.3.2. Education and National/International Security

In the *Gendered Climate-Security Lifecycle*, the *Education* CS-Stage is also inextricably linked to *National/International Security*.⁵⁸⁸ In fact, *Education* may play both positive and negative roles in the four potential *National/International Security* pathways.⁵⁸⁹ Looking first at the *crime/violence/extremism* pathway, *Education* may be used to reinforce larger narratives emphasizing the importance of gender hierarchies, which places men in masculinized leadership roles over women, invisibilizes women's roles in history, conveys women's roles only in service of men, and may condone the use of sexual- and gender-based violence.⁵⁹⁰ As previously noted, on a macro-level, Hudson et al. have used extensive data analysis to show that when a system places a strong emphasis on the subordination of women at the household level via the 'Patrilineal/Fraternal Syndrome,' that system is more likely to experience instability and insecurity, lower levels of overall well-being, greater environmental degradation, and

⁵⁸⁸ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

⁵⁸⁹ Kenneth D. Bush and Diana Saltarelli, eds., *The Two Faces of Education in Ethnic Conflict: Towards a Peacebuilding Education for Children*, Innocenti Insight 4 (Florence: UNICEF Innocenti Research Centre, 2000), 9, <https://www.unicef-irc.org/publications/pdf/insight4.pdf>.

⁵⁹⁰ Durrani and Dunne, "Curriculum and National Identity," 232–33.

decreased prosperity.⁵⁹¹ When an *Education* system that reinforces gender inequities comes under pressure from climate change, loss of learning opportunities may make it difficult for men and boys to perform many aspects of their masculine roles (in some cases, this may include greater educational achievement than women). If men’s feelings of emasculation (due to limitations in the availability of educational opportunities) are combined with lower levels of *Education*, or educational messages that amplify discriminatory gendered norms, men and boys may resort to engaging in higher levels of criminality (Linkage 3.1.3.M).⁵⁹² It may be reasonable to suggest that such increased criminality among men would be motivated by *fundamentalist ideologies* or perhaps *pull of networks* also, though no research is available to verify and align existing research with gendered trends in rates of violent crime (see section 1.2.3.2).

In literature on *anti-state grievances* and the *grievances between societal groups* pathway, there are several studies that support a connection to *Education* and climate breakdown. As with many other public services, if climate change squeezes government budgets, the state’s ability to deliver *Education* programs may be severely diminished.⁵⁹³ Under such circumstances, the government may choose to prioritize *Education* for one group over the other or to use *Education* as a wedge issue, thereby stoking dissatisfaction with the government and/or tensions between groups (Linkage 3.1.3.N, Linkage 3.1.3.O).⁵⁹⁴ For instance, the uneven distribution of educational ‘commodities’ between different ethnic groups can be a source of friction, and in some cases, denial of *Education*

⁵⁹¹ Hudson, Bowen, and Nielsen, “The Effects by the Numbers,” 310.

⁵⁹² Shon Michael Reed, “Boys to Men: Masculinity, Victimization, and Offending” (Master’s Thesis, Las Vegas, University of Nevada, 2015), 1, <https://digitalscholarship.unlv.edu/thesesdissertations/3316>.

⁵⁹³ Carolyn Pumphrey, ed., *Global Climate Change: National Security Implications* (Fort Belvoir, VA: Triangle Institute for Security Studies, USAWC Press, 2008), 92, <https://doi.org/10.21236/ADA480687>.

⁵⁹⁴ Bush and Saltarelli, *The Two Faces of Education in Ethnic Conflict*, 10.

can be used as a weapon of war.⁵⁹⁵ Bush and Saltarelli suggest that restricted access to *Education* should be viewed as sign of deteriorating relations between groups.⁵⁹⁶ Here, it could be posited that when *Education* is used as a weapon of war, individuals may be motivated to participate in protests or violence against the ‘other’ by *avoid abuse* (typically women) or *exposure to violence/repression, pull of networks, or revenge* (typically men), while *fundamental ideology* may motivate both, however gender-disaggregated research on this subject is not yet available.

Governments or non-state actors under climate strain may also use educational curricula as a form of ethnocide, robbing minority groups of their language, traditions, and cultural values.⁵⁹⁷ Similarly, *Education* may be used to manipulate history, inculcate authoritarian and chauvinistic values and identities, and lead to fundamentalization of national identities.⁵⁹⁸ Furthermore, *Education* may be wielded as a way to instill hatred or blame for the ‘other’ (for climate breakdown, for instance), and may intentionally be used to separate others in an effort to perpetuate systems of inequality (Linkage 3.1.3.P), such as between the Tutsis and Hutus in Rwanda, in the apartheid system in South Africa, or in gender-separated systems in many countries globally.⁵⁹⁹ In these ways, it might be reasonable to suggest that *Education* could stoke tensions between groups with motivations such as *fundamentalist ideologies* (women and men), *pull of networks* (typically men), or *revenge* (typically men), though since no gender-related research is

⁵⁹⁵ Bush and Saltarelli, *The Two Faces of Education in Ethnic Conflict*, 9,11.

⁵⁹⁶ Bush and Saltarelli, *The Two Faces of Education in Ethnic Conflict*, 10.

⁵⁹⁷ Bush and Saltarelli, *The Two Faces of Education in Ethnic Conflict*, 10.

⁵⁹⁸ Tejendra Pherali and Ellen Turner, “Meanings of Education under Occupation: The Shifting Motivations for Education in Palestinian Refugee Camps in the West Bank,” *British Journal of Sociology of Education* 39, no. 4 (May 19, 2018): 567–89, <https://doi.org/10.1080/01425692.2017.1375400>; Marie Lall, “Educate to Hate: The Use of Education in the Creation of Antagonistic National Identities in India and Pakistan,” *Compare: A Journal of Comparative and International Education* 38, no. 1 (January 11, 2008): 103–19, <https://doi.org/10.1080/03057920701467834>.

⁵⁹⁹ Bush and Saltarelli, *The Two Faces of Education in Ethnic Conflict*, 14–15.

available, these are hypotheses that require testing. In all of these ways, the weaponization and masculinization of *Education* perpetuates structural inequalities and institutional violence against minorities, often against women and girls, diminishing the, “collective, emancipatory importance attributed to *Education* by those who live under oppression.”⁶⁰⁰

While the preceding discussion has demonstrated that poorly designed or intentionally weaponized educational programs can contribute to ratcheting up tensions and conflict between groups, *Education* can play a transformative role, and is often pivotal to avoiding conflicts along the *anti-state grievances*, *grievances between societal groups*, and *interstate tensions* pathways. Research by Thyne shows that *Education* can play a mediating role in preventing civil war in two ways: (1) preventing grievance by demonstrating to people that their government is attempting to improve their lives (Linkage 3.1.3.Q), and (2) adding stability by giving people tools to resolve disputes peacefully, making them less likely to join an armed group or rebellion (Linkage 3.1.3.R).⁶⁰¹ As such, *Education* may also play a positive role in transforming gender norms, in peacebuilding, in preventing conflict and violence, and in aiding post-conflict and post-disaster recovery. On a programmatic level, intentionally-designed curricula can help to foster and sustain ethnically and linguistically tolerant environments; cultivate attitudes of desegregation and inclusive citizenship; or even to disarm history and defy state oppression.⁶⁰² Government investments in *Education* signal inclusiveness which may be interpreted as the active honouring the settlement of rebel groups, thereby

⁶⁰⁰ Pherali and Turner, “Meanings of Education under Occupation.”

⁶⁰¹ Clayton L. Thyne, “ABC’s, 123’s, and the Golden Rule: The Pacifying Effect of Education on Civil War, 1980?1999,” *International Studies Quarterly* 50, no. 4 (December 2006): 733–54, <https://doi.org/10.1111/j.1468-2478.2006.00423.x>.

⁶⁰² Bush and Saltarelli, *The Two Faces of Education in Ethnic Conflict*, 16–21.

reducing conflict risks.⁶⁰³ A study by Barakat and Urdal also finds that even poor countries can reduce the risk of violence and conflict through increased educational opportunities, particularly for young people, and particularly for young males.⁶⁰⁴ These findings could be further tested to determine whether gender transformative approaches to education would nullify motivations such as *avoid abuse* (typically women), *exposure to violence/repression*, *pull of networks*, *revenge* (typically men), or *fundamental ideology* (both).

Importantly, women's involvement in peacebuilding increases both the durability and quality of peace, and *Education* has been shown to be key to preparing women for participating in peace processes through peacebuilding skill acquisition and learning the attitudes necessary for such engagement (Linkage 3.1.3.S).⁶⁰⁵ For instance, in a study of the Mosintuwu Women's School in Indonesia by Kristimanta, a grassroots training program for women taught peace *Education*, trauma healing, and social training, essentially preparing women to participate in peacebuilding efforts.⁶⁰⁶ The training proved extremely beneficial for resolving communal conflicts, especially because women's roles in grassroots movements strengthened peacebuilding because of, "their contribution to creating sustainable peace, restoring social conditions, implementing peace treaties,

⁶⁰³ Paul Collier et al., "Breaking the Conflict Trap : Civil War and Development Policy," A World Bank Policy Research Report (Washington, DC: World Bank Group: eLibrary, 2003), 153, <https://doi.org/10.1596/978-0-8213-5481-0>.

⁶⁰⁴ Bilal Barakat and Henrik Urdal, *Breaking The Waves ? Does Education Mediate The Relationship Between Youth Bulges And Political Violence ?*, Policy Research Working Papers (World Bank Group: eLibrary, 2009), <https://doi.org/10.1596/1813-9450-5114>.

⁶⁰⁵ Alan Smith et al., "The Role of Education in Peacebuilding: Literature Review" (New York, May 2011), 76, https://educationanddevelopment.files.wordpress.com/2016/06/1-unicef_peacebuilding_literaturereview.pdf.

⁶⁰⁶ Putri Ariza Kristimanta, "Grass-Roots Post-Conflict Peacebuilding: A Case Study of Mosintuwu Women's School in Poso District, Central Sulawesi, Indonesia," in *Decolonising Conflicts, Security, Peace, Gender, Environment and Development in the Anthropocene*, ed. Úrsula Oswald Spring and Hans Günter Brauch, vol. 30, APESS (Cham: Springer International Publishing, 2021), 569–90, https://doi.org/10.1007/978-3-030-62316-6_19.

disseminating peace issues, establishing a culture of peace, teaching the understanding of conflict and peace, and facilitating societal independence.”⁶⁰⁷ As such, in a warming world, *Education* will become increasingly important for dismantling hierarchical power structures, engendering values of tolerance and peace, and educating people of all genders who can participate in peacebuilding projects.

3.1.3.3. Summary of Gender-Climate-Security and Education

A summary visualizing Gender-Climate-Security connections to *Education* can be found in Figure 17. A list of Diagnostic Questions in Table 57 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

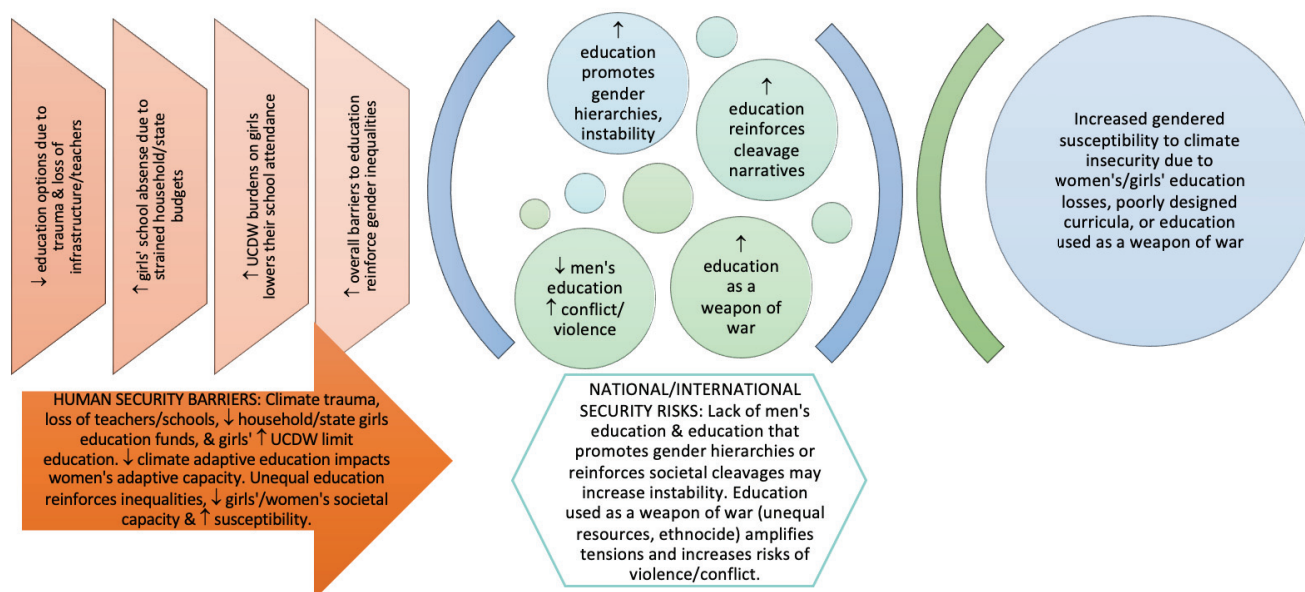


Figure 17. Gendered Climate Security Vulnerabilities in Education.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Education.

⁶⁰⁷ Kristimanta, “Grass-Roots Post-Conflict Peacebuilding.”

3.1.4. Standard of Living

Table 30. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Standard of Living.

Dominant Approach: Measures the quality of material goods and services, and the level of comfort and wealth available to the population within a state.⁶⁰⁸ Measured by the HCSS climate security framework as gross national income (GNI), which reflects the income available to residents of the country.⁶⁰⁹

FPEcon/FPEcol Approach: Focusing on income alone results in a too-narrow view of living standards because of a failure to consider the multiple and intersecting forms of discrimination that impact people’s quality of life based on their level of comfort and wealth. Here it’s helpful to again use FPEcon’s concept of social reproduction, comprising processes that allow human social structures to self-perpetuate, including activities related to the production of goods for markets (a proxy here for income), as well as those activities that support the production of people.⁶¹⁰ Living standards can therefore be understood within the concept of social reproduction by examining how governments balance investments in markets and people.

As McNally suggests, governments that emphasize neo-classical economics design policies to increase the power and private wealth of elites, and allocate national income investments to military expenditures and securing markets for reproducing capital, all of which lowers available funds for vital programs that raise the living standards of the majority of people.⁶¹¹ On the other hand, Gallo suggests there are basic or fundamental goods that contribute to living standards which the state is obligated to provide, including those goods required for physical integrity, access to services, longevity, environment, health, and family and social life, which are necessary for social justice.⁶¹² A gendered understanding of climate security, therefore, is rooted in part in policies that deliver comfort and wealth for all by offering comprehensive public services, including those that support people working within the care economy.

⁶⁰⁸ Remmits, Dick, and Rademaker, “Climate Security Assessment,” 88.

⁶⁰⁹ Remmits, Dick, and Rademaker, “Climate Security Assessment,” 88.

⁶¹⁰ Meg Luxton, “The Production of Life Itself: Gender, Social Reproduction and IPE,” in *Handbook on the International Political Economy of Gender*, by Juanita Elias and Adrienne Roberts (Edward Elgar Publishing, 2018), 37, <https://doi.org/10.4337/9781783478842.00008>.

⁶¹¹ David McNally, *Global Slump: The Economics and Politics of Crisis and Resistance* (PM Press, 2010); Stephen Gill, “National In/Security on a Universal Scale,” in *Power, Production and Social Reproduction*, ed. Isabella Bakker and Stephen Gill (London: Palgrave Macmillan UK, 2003), 213–14, https://doi.org/10.1057/9780230522404_11.

⁶¹² As noted by Villani and Viscolo: “A Fiscal Revolution Inspired by the Capabilities Approach to Reduce Socio-Economic Impact of Climate Change and Strengthen the Resilience of Tax Systems,” *Environmental Research Communications* 2, no. 10 (November 7, 2020): 15, <https://doi.org/10.1088/2515-7620/abc5ac>.

Brief comparison of dominant and feminist definitions of Standard of Living.

Table 31. Short Overview of the Standard of Living Gender-Climate-Security Linkages.

Human Security ⁶¹³	Gender Equality-Security Mechanisms
Linkage 3.1.4.A. Climate change may limit domestic/international budgets for public services → women may be expected to pick up the slack by increasing their UCDW → without sufficient support, women's capacity to absorb increased demands on their time/energy may be fully spent → can contribute to bodily depletion and collapse → may result in deaths of despair	<i>Societal capacity</i>
Linkage 3.1.4.B. Women typically hold more jobs in the public sector than men → climate change may trigger governments to impose austerity measures → public sector employment cuts will cause more women to lose jobs → women's economic stability will be reduced	<i>Societal capacity</i>
Linkage 3.1.4.C. Women are over-represented in in lower-income groups due to structural inequalities (pay gaps, UCDW) → women rely more on public services than men → climate change may trigger governments to impose austerity measures → women's economic stability will be reduced	<i>Societal capacity</i>
Linkage 3.1.4.D. Climate change may cause public service cuts → men's standard of living grievances may increase → could intensify scapegoating of public service employees for standard of living grievances → may increase the mental strain and social stigma experienced by public service employees (mostly women) → may accelerate women public sector employees' bodily depletion, increasing climate susceptibility as well	<i>SD-surplus males-non-state conflict</i>

⁶¹³ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*').

National/International Security⁶¹⁴	Pathway	Motivational Mechanisms
Linkage 3.1.4.E. Climate-related austerity measures may lead to cuts in funding for law enforcement → may lead to lower police effectiveness (caused by lower deterrence, reduced clearance rates) → may increase cost of citizen reporting, leading to lower reporting rates → could lower citizen welfare	Crime/violence/extremism	[Requires research] <i>Greater opportunities, (typically women),[∅] pull of networks, and exposure to violence/repression (typically men)[∅]</i>
Linkage 3.1.4.F. Climate-caused budget shortages may lead to cuts to public services → both property and crime rates may increase	Crime/violence/extremism	[Requires research] <i>Avoid abuse, (typically women),[∅] pull of networks, and exposure to violence/repression (typically men)[∅]</i>
Linkage 3.1.4.G. Climate-induced austerity measures may induce a widespread drop in standard of living (rising food prices, lack of affordable housing, pension reforms, removal of energy subsidies) → may fuel feelings of abandonment, neglect, discrimination (if remaining public support is distributed unequally → the public may be galvanized into violent protest	Anti-state grievance	[Requires research] <i>Avoid abuse, (typically women)[∅] and exposure to violence/repression (typically men)[∅]</i>
Linkage 3.1.4.H. Climate change may prompt austerity measures → factors that may increase women’s participation in austerity demonstrations: lower risk of violence, state-level democratic regime, non-institutionalized political activism (limited by social norms), lacking full-time employment (women)	Anti-state grievance	<i>Greater opportunities[§] and avoid abuse[§] (among women)</i>

⁶¹⁴ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security ⁶¹⁴	Pathway	Motivational Mechanisms
Linkage 3.1.4.I. Climate change may prompt austerity measures → factors that may increase men’s participation in austerity demonstrations: institutionalized political activism (no social norm limitations), unemployed working-class men (men typically are not deterred by violence in protest movements)	Anti-state grievance	<i>SD-surplus males-unemployment</i> [§]
Linkage 3.1.4.J. National or local austerity measures may be instituted to compensate for climate change losses → minorities, women (as public support recipients or if austerity leads to gendered employment disparities), public sector workers may be blamed for austerity measures → may result in increased violence against scapegoated groups	Grievances between societal groups	[Requires research] <i>SD-urban surplus males-state-based conflict</i> [∅] // <i>Avoid abuse (typically women),[∅] exposure to violence/ repression or revenge (typically men)</i> [∅]

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with §; those with no research with ∅. For a full explanation of each Linkage, see sections 3.1.4.1 and 3.1.4.2.

3.1.4.1. Standard of Living and Human Security

This discussion aims to take a wider view of *Standard of Living* than what is offered by conventional economists—one that goes beyond the quantity of material goods and services an individual can purchase with their income to achieve a reasonable level of comfort and wealth. Since women frequently operate primarily in the informal economy more than men, their incomes are often lower and benefits fewer—as such, women’s standards of living cannot be lumped in with those of men who can purchase more goods and services with their higher incomes. Examining standards of living by

another measure—quality and availability of public benefits—makes it clearer how women’s lives are impacted by climate-caused economic changes. Given that women are responsible for more social reproductive work (unpaid care and domestic work (UCDW)), and often disproportionately supplement their income with public benefits in order to enjoy a good *Standard of Living*, climate is likely to have a much more profound impact on women. Under stress due to climate change, these public service systems may be reduced, consequently reinforcing and amplifying gendered inequalities, and making women more vulnerable to climate shocks and disasters. As such, this discussion of standards of living centres first on the *societal capacity Gender Equality-Security Mechanism*, covering climate’s impacts on women’s social reproductive work, public sector employment, and receipt of public services. It will also cover the scapegoating of women and public sector employees and the resultant bodily depletion of women (with an exploration of whether *SD-surplus males-non-state conflict mechanisms* are also relevant).⁶¹⁵

In economic systems designed around neo-classical theory and practice, government budgets and policies are typically structured with elite profits and market performance in mind. Public benefits, such as employment or other financial assistance; healthcare, social security, or disability insurance; education systems; housing assistance; libraries; hospitals; affordable child and elder care services; piped water services; subsidized food and energy; or transit systems, are provided as budgets permit, but are not considered essential to healthy functioning markets. When budgets become tight,

⁶¹⁵ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson’s *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three ‘*socioeconomic development*’ (SD), (referred to as ‘*SD-urban surplus males-state-based conflict*,’ ‘*SD-surplus males-non-state conflict*,’ and ‘*SD-surplus males-unemployment*’).

governments frequently begin trimming expenditures that are considered ‘public benefits’—meaning those that are not in direct service to the production of goods and services. Importantly, Picchio argues that under normal levels of strain, neo-classical systems depend on women’s UCDW to expand and contract as a way to subsidize the production and accumulation of capital as market forces change.⁶¹⁶ Therefore, though women’s UCDW is often overlooked and devalued in government budgeting processes, it is an absolutely essential element to the production and accumulation of capital in the formal market.

Climate change is expected to have a significant negative impact on governments’ finances, especially in developing economies, and is likely to severely hamper governmental capacity to provide a good *Standard of Living* to its people. In 2022, the IPCC raised concerns about how climate change and urbanization create complex risks, especially when basic services are lacking.⁶¹⁷ For instance, countries in the global south are already experiencing the twin challenges of debt crises (aggravated by the COVID-19 pandemic) and increasing climate disaster management expenses, both of which may trigger austerity measures.⁶¹⁸ In these conditions, governments are likely to divert more of

⁶¹⁶ Antonella Picchio, *Social Reproduction: The Political Economy of the Labour Market* (Cambridge, England; New York: Cambridge University Press, 1992).

⁶¹⁷ “Climate Change: A Threat to Human Wellbeing and Health of the Planet. Taking Action Now Can Secure Our Future” (Intergovernmental Panel on Climate Change, February 28, 2022), https://www.ipcc.ch/site/assets/uploads/2022/02/PR_WGII_AR6_english.pdf; Paradoxically, even international policies aimed at reducing the impacts of climate change, such as global carbon trading schemes, may have a deleterious impact on standards of living if not designed with equity in mind. Christoph Böhringer and Heinz Welsch, “Contraction and Convergence of Carbon Emissions: An Intertemporal Multi-Region CGE Analysis,” *Journal of Policy Modeling* 26, no. 1 (January 2004): 21–39, <https://doi.org/10.1016/j.jpolmod.2003.11.004>.

⁶¹⁸ Iolanda Fresnillo Sallan, “Debt and Climate: Entangled Emergencies Derailing Women’s Rights and Gender Justice,” *Gender & Development* 28, no. 3 (December 10, 2020): 499–513, <https://doi.org/10.1080/13552074.2020.1838168>.

their budgets away from public services through a series of ‘reforms’ (see Table 32. Sample Austerity Reforms.).⁶¹⁹

Table 32. Sample Austerity Reforms.

-
- Eliminating or reducing food, agricultural, or fuel subsidies;
 - Enacting wage cuts, caps, and hiring freezes, particularly for teachers, social workers, health workers, and civil servants;
 - Reducing social protection coverage, often for the poorest, in welfare programs;
 - Changing pension systems by reducing employer contribution rates, prolonging retirement age, increasing eligibility periods, indexing retirement age to increase life expectancy, and lowering/freezing/cutting pension subsidies;
 - Passing labour reforms to revise minimum wages, weaken collective bargaining, make employment protection procedures more flexible, and limit salary adjustments to cost-of-living benchmarks;
 - Changing health systems by increasing fees and co-payments, lowering quality/availability of services, and introducing cost-saving measures;
 - Increasing consumption tax rates on goods and services, or introducing progressive tax approaches to increase taxes on income, inheritance, property, corporations, and the financial sector;
 - Privatizing essential public services and assets, including agriculture and food production, social security, health, natural resource management, and education – changes which are often accompanied by layoffs and lower quality or more expensive services/goods;
-

*As found in Ortiz and Cummins, “The Austerity Decade 2010-20” and Donald and Lusiani, “The Gendered Costs of Austerity.”*⁶²⁰

Cuts to public spending such as those listed above adversely and disproportionately affect women in three main ways according to a Bretton Woods Project report on the IMF and austerity requirements. First, nearly all austerity measures result in increases to women’s UCDW, including cuts to affordable child and elder care

⁶¹⁹ Isabel Ortiz and Matthew Cummins, “The Austerity Decade 2010-20,” *Social Policy and Society* 20, no. 1 (December 17, 2021): 150–55, <https://doi.org/10.1017/S1474746420000433>.

⁶²⁰ Ortiz and Cummins, “The Austerity Decade 2010-20,” 150–55.

services, piped water services, public transport infrastructure, and the like.⁶²¹ Noting in particular the problems associated with social reproduction, the report states that, “it is not just that expenditure cuts inadvertently increase women’s unpaid care work. Rather, such cuts are made based on the implicit or explicit assumption that women will fill the gaps created.”⁶²² The reality, as Luxton explains it, is that when facing shocks and disasters, women do not have an infinite capacity for absorbing expanded demands on their time, and without sufficient support, extreme bodily depletion may lower women’s *Standard of Living*, potentially causing physical and mental collapse (Linkage 3.1.4.A).⁶²³ In worst case scenarios, individuals may give up the struggle to reproduce themselves, eschewing marriage and childbearing, and even succumbing to ‘deaths of despair.’⁶²⁴

Second, austerity measures impact women’s income and economic security in two ways: (A) the share of women in public sector employment exceeds that of their total (national-level) employment in most countries, and so cuts to public sector wages, benefits, and jobs directly impacts women (Linkage 3.1.4.B); and (B) women are over-represented in lower-income groups due to structural gender inequalities (such as gender pay gaps), and therefore rely heavily on public services (including pensions), and suffer more when they are cut (Linkage 3.1.4.C).⁶²⁵

⁶²¹ Kate Donald and Nicholas Lusiani, “The Gendered Costs of Austerity: Assessing the IMF’s Role in Budget Cuts Which Threaten Women’s Rights,” Briefing Note, The IMF, Gender Equality and Expenditure Policy (Brazil: Bretton Woods Project, 2017), 10, <https://socialprotection-humanrights.org/resource/gendered-costs-austerity-assessing-imfs-role-budget-cuts-threaten-womens-rights/>.

⁶²² Donald and Lusiani, “The Gendered Costs of Austerity,” 10.

⁶²³ Meg Luxton, “Feminist Political Economy in Canada and the Politics of Social Reproduction,” in *Social Reproduction: Feminist Political Economy Challenges Neo-Liberalism*, ed. Kate Bezanson and Meg Luxton (Canada: McGill Queen University Press, 2006), 38.

⁶²⁴ Smriti Rao, “Beyond the Coronavirus: Understanding Crises of Social Reproduction,” *Global Labour Journal* 12, no. 1 (January 31, 2021): 43, <https://doi.org/10.15173/glj.v12i1.4307>.

⁶²⁵ Donald and Lusiani, “The Gendered Costs of Austerity,” 9.

Third, public investment cuts can cause restrictions in women's access to essential services, such as shelters for survivors of SGBV, *Healthcare*, job training, *Education*, reproductive services, and refugee support.⁶²⁶ As with many other gender inequities, these austerity impacts are even more severe for groups subject to intersectional discrimination based on sexuality, nationality, migrant status, ethnicity, disability, class, or religion.⁶²⁷

Finally, with a lens of *socioeconomic development Gender Equality-Security Mechanism* (specifically *SD-urban surplus males-state-based conflict*), diminished standards of living due to climate change may result in easier recruitment of disaffected young men into non-state groups or extremist organizations such as white supremacist groups, particularly when economic grievances are combined with grievances against other ethnic or religious groups. Some research has shown that population-level decreases in living standards may lead to violent scapegoating of social welfare recipients and public sector workers. Research by Marron documents how, under austerity measures, health service employees in Ireland were characterized as grossly inept, incompetent, “inefficient, over-paid and privileged.”⁶²⁸ While such verbal violence, supported by gendered inequities and institutional structures, may not result in bodily harm, it nevertheless creates mental strain and social stigma that contributes to bodily depletion, and is more likely to impact women than men given their higher rates of employment in the public sector (Linkage 3.1.4.D). Furthermore, if such scapegoating occurs through male networks, it could contribute to increased rates of civic unrest and conflict further down the Gendered Climate-Security Lifecycle (more on this topic in section 3.1.6.2).

⁶²⁶ Donald and Lusiani, “The Gendered Costs of Austerity,” 10.

⁶²⁷ Donald and Lusiani, “The Gendered Costs of Austerity,” 9.

⁶²⁸ Aileen Marron, “Framing the HSE: A Print Media Analysis of the Irish Health Service Executive and Its Employees,” *Socheolas: Limerick Student Journal of Sociology* 4, no. 2 (December 2012): 4–22.

An FPEcol perspective, which emphasizes the centrality of care and life and the biophysical limits of the planet, would allow for the development of gender transformative budgets that maintain equitable standards of living.⁶²⁹ Addressing the significant gendered disparities in UCDW would require consideration of the bodily depletion that comes from the unrealistic expectation that women's time and energy can expand infinitely to fill gaps in public services. On the contrary, women's unpaid and undervalued work must be fairly compensated in climate-sensitive budgets. In the absence of such considerations, rather than cutting public service budgets under climate-strained conditions, governments should consider expanding public services in order to ensure women are not further disadvantaged.

3.1.4.2. Standard of Living and National/International Security

As an important GCS-Factor in the *Gendered Climate-Security Lifecycle*, the rise and fall of a system's *Standard of Living* may play a pivotal role in climate-related *National/International Security* considerations.⁶³⁰ Understanding how gender intersects with standards of living is important for teasing apart how the two may counter or increase *Susceptibility* to climate-induced conflict and violence.

Looking first at *crime/violence/extremism* pathway, it should not be surprising that austerity measures may lead to smaller budgets for law enforcement and crime prevention, which may have the effect of producing environments in which crime can thrive. For instance, recent austerity-related cuts to police services and housing in the UK

⁶²⁹ Fresnillo Sallan, "Debt and Climate."

⁶³⁰ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

were followed by an increase in crime rates, with the effect more pronounced in already ‘deprived areas.’⁶³¹ In a similar study, Facchetti suggests that reduced funding for police services resulted in a sizable reduction in citizen welfare because of, “a persistent significant increase in violent crimes, consistent with lower deterrence, and reduced clearance rates, indicating lower police effectiveness. ... with reduced reporting of non-violent crimes, as citizens internalise a higher reporting cost” (Linkage 3.1.4.E).⁶³² No research exists to specifically analyze motivations for increased criminology due to climate-related austerity cuts to law enforcement, however studying whether motivations like *greater opportunities* might motivate women to engage in more crime, or whether men may be motivated to engage in criminal activity because of *pull of networks* or *exposure to violence/repression* might be useful.

Cuts to public support services other than law enforcement also appear to trigger increases in crime rates. This pattern was observed in Greece following their austerity measures dubbed “anti-social policy” measures that were later blamed for a rise in social ills such as violent crime.⁶³³ Looking at it another way, research by Andersen and others shows public service programs tend to reduce criminal activity (Linkage 3.1.4.F).⁶³⁴ These various studies indicate increases in both property and violent crimes, suggesting that both may increase offending during times of climate-based austerity (see section

⁶³¹ Tania Arrieta Hernandez, “The Consequences of the Austerity Policies for Public Services in the UK,” *Studies in Social Justice* 15, no. 3 (May 6, 2021): 527, <https://doi.org/10.26522/ssj.v15i3.2568>.

⁶³² Elisa Facchetti, “Police Infrastructure, Police Performance, and Crime: Evidence from Austerity Cuts” (Urban Economics Association, Queen Mary University of London, 2021), 92, https://csef.it/wp-content/uploads/E_Facchetti.pdf.

⁶³³ Heikki Ervasti, Antti Kouvo, and Takis Venetoklis, “Social and Institutional Trust in Times of Crisis: Greece, 2002–2011,” *Social Indicators Research* 141, no. 3 (February 2019): 1207–31, <https://doi.org/10.1007/s11205-018-1862-y>.

⁶³⁴ Signe Hald Andersen, “Unemployment and Crime: Experimental Evidence of the Causal Effects of Intensified ALMPs on Crime Rates among Unemployed Individuals,” *The British Journal of Criminology* 61, no. 5 (September 2, 2021): 1316–33, <https://doi.org/10.1093/bjc/azab002>.

1.2.3.1). Research is required to test whether motivations such as *avoid abuse* among women and *pull of networks* or *exposure to violence/repression* among men may increase criminal involvement. As such, given the ways in which climate change may shift budget priorities for local and national governments, social support services should be seen as a mechanism for reducing overall crime rates and stabilizing communities. [Noting that more research is specifically required to determine whether women and men participate in violent or property crimes more readily, as outlined in section 1.2.3.2].

Declining standards of living are also implicated in *anti-state grievances*, especially as they relate to political unrest/protests and violent scapegoating measures in the face of austerity measures, such as those likely to be used in response to climate change disasters and resulting economic challenges. It's important to note that the relationship between public services and protests is multi-faceted and complex. In a study by Brady et al., results suggest that the provision of social services has the effect of increasing protest activities, since money, time, and civic skills enable non-violent political protest.⁶³⁵ Additionally, the more universal and generous public services are, the more widespread civic participation tends to be.⁶³⁶ Nevertheless, in a study by Ortiz et al. of world protests between 2006 and 2013, unrest (including violent protests) over rising food prices, lack of affordable housing, pension reforms, the removal of energy subsidies,

⁶³⁵ Henry E. Brady, Sidney Verba, and Kay Lehman Schlozman, "Beyond SES: A Resource Model of Political Participation," *The American Political Science Review* 89, no. 2 (June 1995): 271–94.

⁶³⁶ Mario Quaranta, "Collective and Private Resources and the Inequalities of Non-Violent Political Protest in European Countries," *Journal of Civil Society* 10, no. 3 (2014): 294–316, <https://doi.org/10.1080/17448689.2014.944684>; Kyle Dodson, "Economic Threat and Protest Behavior in Comparative Perspective," *Sociological Perspectives* 59, no. 4 (December 2016): 873–91, <https://doi.org/10.1177/0731121415608508>.

and low living standards in general occurred in numerous countries (Linkage 3.1.4.G).⁶³⁷ Furthermore, they found that 488 total protests occurred within the time period related to economic justice and austerity measures.⁶³⁸ Sierra Leone is an example of this; austerity measures that included cuts to subsidies on essentials like staple foods and petroleum products shocked the country into “intense relative deprivation,” which galvanized the public into violent action.⁶³⁹ Taydas and Peksen have found that when social services are delivered unequally (based on gender, race, ethnicity, class, and so on) and/or when poorly-designed or absent public services contribute to lower *Standards of Living*, they can fuel a sense of abandonment, neglect, and discrimination which can increase incentives to engage in protests and anti-state violence.⁶⁴⁰ However, these feelings do not specify a gender component. Research is therefore required to test whether *avoid abuse* among women and *exposure to violence/repression* among men may drive engagement in political unrest, and to align with findings outlined in section 1.2.3.3.

Participation in austerity-related protests can also be examined in terms of the gendered norms that influence who is involved and why. When civic action is considered less risky, Caren et al. find that women are more likely to engage, such as with boycotts or petition-signing.⁶⁴¹ In a survey of protest responses to the great recession in Spain, Sweden, and the UK, Roth and Saunders found that at a country level, gender

⁶³⁷ Isabel Ortiz et al., “World Protests 2006-2013” (Initiative for Policy Dialogue and Friedrich-Ebert-Stiftung New York Working Paper No. 2013, September 2013), 19–20, <https://doi.org/10.2139/ssrn.2374098>.

⁶³⁸ Ortiz et al., “World Protests 2006-2013,” 5.

⁶³⁹ Earl Conteh-Morgan, “Structural Violence and Relative Deprivation: Precursors to Collective Political Violence in Sierra Leone” (Center for Strategic Studies, Joint Special Operations University Press Publications, 2018), 7.

⁶⁴⁰ Zeynep Taydas and Dursun Peksen, “Can States Buy Peace? Social Welfare Spending and Civil Conflicts,” *Journal of Peace Research* 49, no. 2 (March 2012): 273–87, <https://doi.org/10.1177/0022343311431286>.

⁶⁴¹ Caren, Ghoshal, and Ribas, “A Social Movement Generation.”

regime/empowerment matters: women participated more in austerity demonstrations in democratic gender regimes (Sweden) and less in neoliberal gender regimes (Spain and the UK).⁶⁴² Individually, women are more likely to become anti-austerity protesters when not in full time employment, suggesting they had more time, but also that they may have been experiencing greater employment precarity as a result of the economic downturn, i.e. they may be more likely to demonstrate as part of a ‘new loser’ group.⁶⁴³ These findings suggest that women’s UCDW may be a driving factor in whether they participate in protests (Linkage 3.1.4.H). With these insights, it is possible to suggest that women may be motivated by a desire to *greater opportunities* and *avoid abuse*, though specific research on this is required.

There is also a robust literature supporting the gendered nature of unrest related to austerity measures, confirming findings discussed in section 1.2.3.3 that when civic action becomes violent, gender plays a role in determining who participates in demonstrations and the tenor of civic unrest related to standards of living. A study by Rucht shows that men are far more likely to participate in disruptive action, such as occupying buildings or factories.⁶⁴⁴ Marien et al. show that men tend to be more active in institutionalized forms of political activism, whereas women are more likely to participate in non-institutionalized forms of political activity, suggesting the structures and institutions that determine where women are permitted to operate results in gendered forms of political participation.⁶⁴⁵ Furthermore, Sikweyiya and Nkosi have found that

⁶⁴² Silke Roth and Clare Saunders, “Do Gender Regimes Matter? Gender Differences in Involvement in Anti-Austerity Protests - a Comparison of Spain, Sweden and the United Kingdom,” *Social Movement Studies* 19, no. 3 (May 3, 2020): 317, <https://doi.org/10.1080/14742837.2019.1676222>.

⁶⁴³ Roth and Saunders, “Do Gender Regimes Matter?,” 317.

⁶⁴⁴ Rucht, “The Spread of Protest Politics.”

⁶⁴⁵ Sofie Marien, Marc Hooghe, and Ellen Quintelier, “Inequalities in Non-Institutionalised Forms of Political Participation: A Multi-Level Analysis of 25 Countries,” *Political Studies* 58, no. 1 (February

protests are more likely to become violent when they are attended by unemployed working-class men who have experienced ongoing marginalization, while women are virtually absent from such civic action (Linkage 3.1.4.I).⁶⁴⁶ These findings, therefore may suggest that the *Gender Equality-Security Mechanism* of *SD-surplus males-unemployment* is at work, though more research is required to tease out this relationship to climate change and living standards in particular.

In terms of *grievances between societal* groups, the previously noted verbal scapegoating of minorities, women, and public sector workers may also develop into acts of physical violence against anyone considered ‘other.’ In Carastathis’ feminist exploration of violence against migrants and women in Greece caused by the politics of austerity, “Some bodies are rendered vulnerable and precarious, while others assert an entitled relation to national space while being economically disempowered by austerity measures.”⁶⁴⁷ Both recipients of social services and public sector employees have been shown to experience violent reprisals during times of austerity.⁶⁴⁸ Reports of physical assaults against prison workers, ambulance operators, housing officers, and other public sector workers as a result of austerity policies have been common in recent years.⁶⁴⁹

2010): 7, <https://doi.org/10.1111/j.1467-9248.2009.00801.x> Interestingly, non-institutionalized forms of participation generally reinforce educational inequalities (higher levels of education are found in those participating in formal political spaces), and therefore are not effective means for lower-education groups to gain access to decision-making spheres.

⁶⁴⁶ Sikweyiya and Nkosi, “Violent Protests and Gendered Identities.”

⁶⁴⁷ Anna Carastathis, “The Politics of Austerity and the Affective Economy of Hostility: Racialised Gendered Violence and Crises of Belonging in Greece,” *Feminist Review* 109, no. 1 (February 2015): 73–95, <https://doi.org/10.1057/fr.2014.50>.

⁶⁴⁸ Joe Sim, “Austerity, Violence and Prisons,” in *The Violence of Austerity* (Pluto Press, 2017), 198, <https://doi.org/10.2307/j.ctt1pv8988>.

⁶⁴⁹ Herald View, “Protecting Public Sector Workers against Assault,” *The Herald*, October 23, 2014, <https://www.heraldscotland.com/opinion/13186060.protecting-public-sector-workers-assault/>; Joshua Busby, “In Harm’s Way: Confronting Violence against NHS Ambulance Staff” (GMB Union, 2018), <https://www.gmb.org.uk/sites/default/files/IN-HARMS-WAY.pdf>; “Violent Attacks on Public Service Workers Up,” *BBC News*, October 24, 2014, sec. Scotland, <https://www.bbc.com/news/uk-scotland-29748254>; Sim, “Austerity, Violence and Prisons.”

Those who benefit from public services are frequently victims of assault and violence during times of austerity. Violent attacks against people with disabilities, migrants, and the homeless, and sexual violence against women have been widely reported.⁶⁵⁰ O'Flynn et al. summarize such misguided hostilities in this way: “What the above evidences are systematic efforts to transfer culpability for deteriorating economic and social conditions to the putatively inefficient and parasitic public sector.”⁶⁵¹ These findings do not offer gender-disaggregated data, however it is possible that the *SD-urban surplus males-state-based conflict* mechanism may combine with climate pressures on standards of living to increase socioeconomic development-based violence and crime (Linkage 3.1.4.J), though examination of all factors within a particular context would be required to ascertain whether this is true. Other motivations that move people to engage in intrastate violence could be tested, such as *avoid abuse* (typically women) or *exposure to violence/repression or revenge* (typically men).

Finally, there is a lack of research on whether climate-caused declining standards of living are likely to fuel *interstate tensions*. Nevertheless, this discussion has shown strong evidence that climate-related austerity measures may reduce standards of living, and resultantly impact rates of crime, anti-state protests, and tensions between groups, suggesting governments should look for other means by which to cut budgets. Doing otherwise may inadvertently increase the precarity of people's lives and destabilize

⁶⁵⁰ Daniel McCulloch, “Austerity’s Impact on Rough Sleeping and Violence,” in *The Violence of Austerity* (Pluto Press, 2017), 117, <https://doi.org/10.2307/j.ctt1pv8988>; Jon Burnett, “Austerity and the Production of Hate,” in *The Violence of Austerity* (Pluto Press, 2017), 219, <https://doi.org/10.2307/j.ctt1pv8988>.

⁶⁵¹ Micheal O’Flynn, Lee Monaghan, and Martin Power, “Scapegoating During a Time of Crisis: A Critique of Post-Celtic Tiger Ireland,” *Sociology* 48 (October 14, 2014): 921–37, <https://doi.org/10.1177/0038038514539059>.

communities. Applying a gender lens to austerity-related *National/International Security* threats may offer ideas for how to alleviate such pressures.

3.1.4.3. Summary of Gender-Climate-Security and Standard of Living

A summary visualizing Gender-Climate-Security connections to *Standard of Living* can be found in Figure 18. A list of Diagnostic Questions in Table 58 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

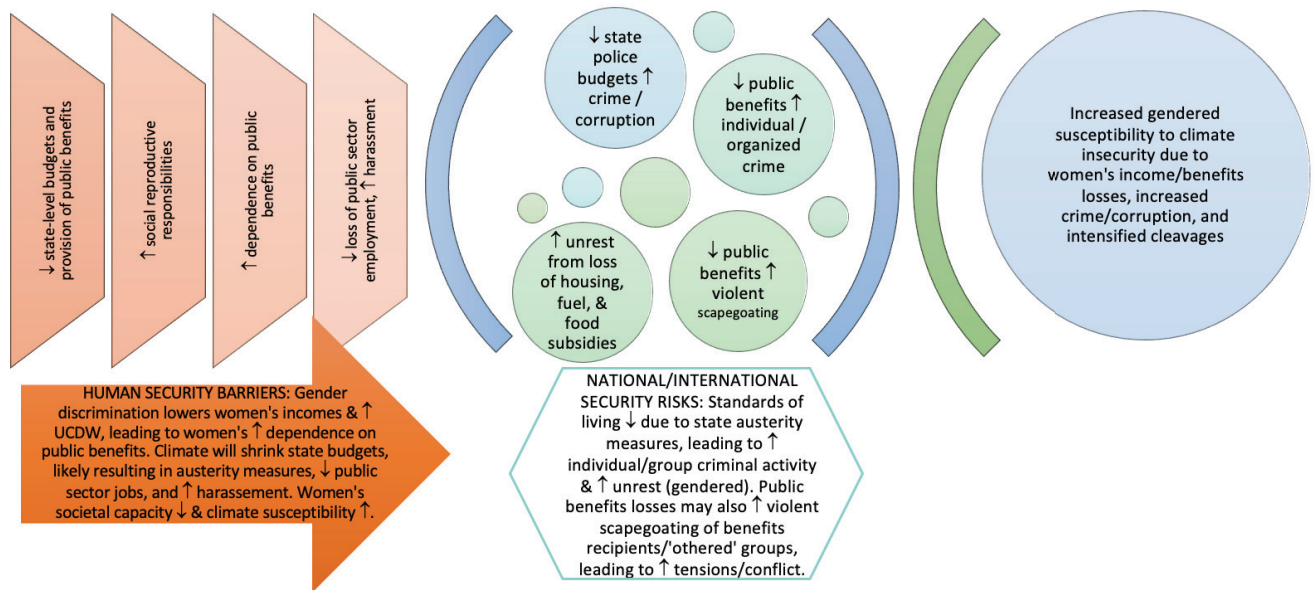


Figure 18. Gendered Climate Security Vulnerabilities in Standard of Living.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Standard of Living.

3.1.5. Unemployment

Table 33. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Unemployment.

<p>Dominant Approach: Share of the total workforce without <i>paid</i> work, but that is available for and seeking employment.⁶⁵²</p>
<p>FPEcon/FPEcol Approach: Given the central role employment plays in the stability of people's lives, a climate security framework would be incomplete without taking UCDW into consideration. FPEcon's idea of social reproduction offers a way to interrogate the paid/unpaid work continuum within and beyond the household to examine the links between unemployment and the triple nexus.⁶⁵³ Unlike the neoliberal understanding of society which values 'legitimate' (often masculine) work, social reproduction theory also assigns value to the familial and communitarian work required to sustain and reproduce societies.⁶⁵⁴ In free economies, Luxton notes:</p> <p style="padding-left: 40px;">although the kinds of sex/gender-specific work vary widely, women typically are expected to do more of the labours involved in having babies, raising children, providing care and immediate provisioning – labours that are outside the purview of formal production but essential for the continuation of human life on a daily and generational basis.⁶⁵⁵</p> <p>Furthermore, Luxton also suggests that there is a constant negotiation between capitalist profit-making requirements and the needs of labouring populations for increases in wages; employers will always attempt to keep labour costs as low as possible in the production of market goods, while employees strive to achieve the highest wages and benefits possible in order to attain a good standard of living.⁶⁵⁶ Given that women are often at the bottom of pay scales, they frequently must bear the financial burden of profit-focused cuts to wages and benefits.</p> <p>As such, the ensuing discussion will centre on an understanding of unemployment that includes the impact of familial and communitarian work (unpaid care and domestic work or UCDW) on a person's availability to work as a more comprehensive picture of unemployment's role in gendered climate (in)security.</p>

Brief comparison of dominant and feminist definitions of Unemployment.

⁶⁵² "Unemployment, Female (% of Female Labor Force) (Modeled ILO Estimate)," The World Bank, accessed March 28, 2022, <https://data.worldbank.org/indicator/SL.UEM.TOTL.FE.ZS>.

⁶⁵³ Alessandra Mezzadri, Susan Newman, and Sara Stevano, "Feminist Global Political Economies of Work and Social Reproduction," *Review of International Political Economy*, August 6, 2021, 1–21, <https://doi.org/10.1080/09692290.2021.1957977>.

⁶⁵⁴ Bhattacharya, *Social Reproduction Theory*.

⁶⁵⁵ Luxton, "The Production of Life Itself," 37.

⁶⁵⁶ Luxton, "The Production of Life Itself," 43.

Table 34. Short Overview of the Unemployment Gender-Climate-Security Linkages.

Human Security⁶⁵⁷	Gender Equality-Security Mechanisms
Linkage 3.1.5.A. Climate breakdown will increase food insecurity and overall human health → women/girls will be expected to increase time spent in growing/procuring food and caring for sick family members → women/girls will have less time for paid work and may experience higher economic insecurity	<i>Societal capacity</i>
Linkage 3.1.5.B. Climate change will cause precipitation levels to increase/decrease → UCDW (fetching water, fuel wood, performing washing duties) will require more time and effort → women/girls will have less time for paid work and may experience higher economic insecurity	<i>Societal capacity</i>
Linkage 3.1.5.C. Government budgets may be strained due to climate change → governments may choose to make cuts to public benefit services (healthcare, food security, piped water, etc.) → social protection services will be transferred to women/girls → women/girls will have less time for paid work and may experience higher economic insecurity	<i>Societal capacity</i>
Linkage 3.1.5.D. Climate-caused constraints may increase the time required to complete UCDW tasks → men family members may feel women are not living up to UCDW expectations → it may be culturally acceptable to express this dissatisfaction with women's performance through SGBV → injuries/shame associated with SGBV may reduce a woman's ability to work and productivity	<i>Societal capacity</i>
Linkage 3.1.5.E. Climate change may decrease the availability of vital natural resources (water, fuel) → UCDW tasks related to these resources that require long journeys (gathering water/fuel) may require even longer journeys → women may be at higher risk of SGBV on these journeys → injuries/shame associated with SGBV may reduce a woman's ability to work and productivity	<i>Societal capacity</i>

⁶⁵⁷ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security⁶⁵⁷	Gender Equality-Security Mechanisms
Linkage 3.1.5.F. Climate change is expected to negatively impact environment-based livelihoods (rain-fed agriculture, subsistence farming) → women often make up majority of ag workers → women may experience higher unemployment	<i>Societal capacity</i>
Linkage 3.1.5.G. Environment-based livelihoods can be salvaged with climate smart investments (tools, implements, training) → women are frequently barred from owning land → women often cannot access loans to make climate smart investments → women may see increased hardship	<i>Societal capacity</i>
Linkage 3.1.5.H. Sustainable livelihood interventions can help environment-based workers adapt to climate change → women are often excluded from interventions due to gender norms → when women can engage, they may see increased income but also increased labour burdens	<i>Societal capacity</i>
Linkage 3.1.5.I. Climate-based crises are likely to increase unemployment for women and men → in low-paying sectors, women's job losses typically exceed men's → women in low-pay work who lose jobs frequently receive less/no severance payments (men are more likely to receive customary amounts) → men are hired back sooner than women when the economy starts to recover → when women re-enter the workforce, they often must accept low pay, little/no worker protections, long hours, difficult commutes	<i>Societal capacity</i>
Linkage 3.1.5.J. Climate disasters are likely to cause drops in employment → sometimes, men lose jobs more readily than women → some households will be composed of an unemployed man and an employed woman → such conditions often increase rates of SGBV	<i>SD-surplus males-unemployment</i>
Linkage 3.1.5.K. Climate-caused extreme weather will damage property/infrastructure and agricultural land → men working in affected sectors are likely to lose their jobs	<i>SD-surplus males-unemployment</i>
Linkage 3.1.5.L. Climate change is straining the fishing industry → fishing companies are resorting to human trafficking/forced labour → as men migrate for work, they may be trapped in slave-like working conditions	<i>SD-surplus males-unemployment</i>

National/International Security ⁶⁵⁸	Pathway	Motivational Mechanisms
Linkage 3.1.5.M. Climate disasters may leave many men jobless → men may feel they cannot fulfill their culturally ascribed masculine roles (lost status or loci of struggle over ideological norms) → extremist/armed groups may find it easier to recruit new members	Crime/violence/extremism // Anti-state grievances // Grievances between societal groups	<i>SD-surplus males-unemployment</i> [§] // <i>Pull of networks</i> [§] and <i>exposure to violence/repression</i> [§] (typically men)
Linkage 3.1.5.N. Climate change may lead to many job losses → men may be more likely to migrate to urban areas to find work → the numbers of unemployed young men may increase significantly in a given area → state-based and non-state-based violence rates may increase	Anti-state grievances // Grievances between societal groups	<i>SD-urban surplus males-state-based conflict</i> [§]
Linkage 3.1.5.O. Climate change may increase unemployment rates → government may reduce public benefit programs → criminal offending and re-offending are likely to increase (especially among men)	Crime/violence/extremism	<i>Pull of networks</i> [§] and <i>exposure to violence/repression</i> [§] (typically men)

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with §; those with no research with ∅. For a full explanation of each Linkage, see sections 3.1.5.1 and 3.1.5.2.

3.1.5.1. Unemployment and Human Security

An examination of *Unemployment* in terms of social reproduction and the commodification of labour reveals that, due to gendered norms and climate change,

⁶⁵⁸ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

women's employment security is likely to be diminished in multiple ways. Without stable employment that pays a living wage, women are likely to suffer increased economic instability, which suggests that the *Gender Equality-Security Mechanism of societal capacity* is most relevant to this *Unemployment GCS-Factor* within the *Gendered Climate-Security Lifecycle*.⁶⁵⁹ The *Gender-Climate-Security Linkages* reviewed in the following discussion will cover how climate change is expected to intersect with employment and gender to increase women's UCDW burdens (thereby diminishing time/energy available for employment); to increase women's exposure to SGBV (thereby lowering physical wellbeing needed to engage in employment); to cause environment-based and urban-based job losses; and to limit women's ability to adopt climate adaptive tools and techniques. Additionally, risks to men's *Human Security* due to job losses will also be discussed.

Before launching into a full discussion of the interactions between *Unemployment*, climate change, gender, and security, central to understanding the precarity of women's employment in a warming world are the responsibilities of UCDW. Care work can include providing childcare; offering medical and support care to sick or frail adults; or performing domestic work such as laundry, cooking, and collecting fuel or water. UCDW is essential to the economy and society, yet it is largely invisible, unpaid, and unvalued the world over.⁶⁶⁰ Numerous studies have found that gendered norms and

⁶⁵⁹ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three '*socioeconomic development*' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*').

⁶⁶⁰ Leyla Karimli et al., "Factors and Norms Influencing Unpaid Care Work: Household Survey Evidence from Five Rural Communities in Colombia, Ethiopia, the Philippines, Uganda and Zimbabwe," Evaluation Report (Oxfam Policy & Practice, November 15, 2016), 15, <https://policy-practice.oxfam.org/resources/factors-and-norms-influencing-unpaid-care-work-household-survey-evidence-from-f-620145/>.

roles often require women to spend more hours than men on UCDW, either as a primary or secondary activity, which reduces their capacity to engage in income-generating activities.⁶⁶¹ Furthermore, UCDW and employment responsibilities are often at odds with each other. Through the work-family interface (WFI), women's economic standing can be seen as lagging behind men in one of two ways, according to Jennings and McDougald, which are summarized in Table 35.⁶⁶²

Table 35. Gender Differences in Addressing the Work-Family Interface (WFI).

Three Reasons Women <i>Experience</i> WFI as a Conflict Between Competing Work and Family Demands	Three <i>Strategies</i> Women Use for Coping with WFI
Time-based conflict: finite time available to handle responsibilities in both domains	Compensation: they over-invest in one domain to compensate for dissatisfaction in the other
Strain-based conflict: stress from one domain spills into the other	Accommodation: they limit psychological/behavioural investments in one sphere to satisfy demands in the other
Behaviour-based conflict: behaviours in one domain are incompatible with those required in the other	Boundary management: they develop principles and practices for creating, maintaining, and crossing borders between the spheres

*Brief description of the Work-Family Interface developed by Jennings and McDougald, summarized by this study's author.*⁶⁶³

These experiences and strategies feed into a self-reinforcing cycle of income and time-poverty for women (even for girls, starting as early as childhood), which lowers their time available for employment and lifetime earning capacity at almost every societal level and in nearly every industry.⁶⁶⁴ (While men may have a similar need to develop strategies to cope with such strains, since men tend to do less UCDW, they may typically

⁶⁶¹ Karimli et al., "Factors and Norms Influencing Unpaid Care Work," 48.

⁶⁶² Jennifer E. Jennings and Megan S. McDougald, "Work-Family Interface Experiences and Coping Strategies: Implications for Entrepreneurship Research and Practice," *Academy of Management Review* 32, no. 3 (July 2007): 748, <https://doi.org/10.5465/amr.2007.25275510>.

⁶⁶³ Jennings and McDougald, "Work-Family Interface Experiences and Coping Strategies," 748.

⁶⁶⁴ Lawson et al., "Time to Care," 32.

rely less on such strategies.) Due to UCDW responsibilities, women’s employment baseline often lags behind that of men. Climate change is expected to increase demands on women to perform UCDW by intensifying the difficulty level and time required to perform such tasks, putting women even further behind.⁶⁶⁵

There are several direct pathways through which climate change may increase women’s UCDW, and therefore increase their *Susceptibility* to climate risks. First, climate breakdown is expected to increase food insecurity and rates of sickness, requiring women and girls to spend more time growing or fetching food and caring for sick family members (Linkage 3.1.5.A).⁶⁶⁶ Second, changes in precipitation may require more time and effort to fetch basics, such as water, fuel wood, or perform washing duties (Linkage 3.1.5.B).⁶⁶⁷ Third, as already mentioned in the GCS-Factor section *Standard of Living*, cuts to public services and social protection systems will transfer many public service burdens on to women’s shoulders as well (Linkage 3.1.5.C).⁶⁶⁸

In addition to the direct impact of UCDW on women’s economic productivity and employment prospects, climate-induced UCDW pressures on women may indirectly deepen *Unemployment* by increasing rates of SGBV in two ways (as discussed elsewhere in this study). First, SGBV is often a culturally acceptable response when women do not live up to the UCDW expectations placed on them (Linkage 3.1.5.D).⁶⁶⁹ Second, increased UCDW responsibilities can also expose women to new risks of SGBV, such as when the collection of fuelwood or water requires longer journeys through unsafe regions

⁶⁶⁵ Lawson et al., “Time to Care,” 42.

⁶⁶⁶ Lawson et al., “Time to Care,” 16.

⁶⁶⁷ Lawson et al., “Time to Care,” 13.

⁶⁶⁸ Lawson et al., “Time to Care,” 16.

⁶⁶⁹ Andrea Azevedo et al., “Gendered Patterns of Unpaid Care and Domestic Work in the Urban Informal Settlements of Nairobi, Kenya: Findings from a Household Care Survey – 2019” (Oxfam Policy & Practice, November 19, 2019), 11, <https://policy-practice.oxfam.org/resources/gendered-patterns-of-unpaid-care-and-domestic-work-in-the-urban-informal-settle-620910/>.

(Linkage 3.1.5.E).⁶⁷⁰ As explained in greater detail in the *Healthcare* GCS-Factor, Cadilhac et al. find that intimate partner violence (IPV), a form of SGBV, seriously impacts emotional and physical wellbeing, which in turn hampers an individual's ability to work and reduces total productive days as employees and caregivers.⁶⁷¹ Combined, increased UCDW responsibilities are likely to reinforce gender inequalities, thereby complicating women's abilities to maintain paid work, and lowering their *societal capacity*.

The *societal capacity Gender Equality-Security Mechanism* is also at work in climate's impact on *Unemployment* trends among women. Climate change is expected to have different impacts depending on location and sector. In rural settings, studies conducted in Asia, the Pacific, Africa, and Latin America all show that climate change is expected to decrease women's employment security, especially where environment-based livelihoods (such as rain-fed agriculture, subsistence farming, etc.) are the primary drivers of economic activity (Linkage 3.1.5.F).⁶⁷² Environment-based employment opportunities will be a key determinant of climate adaptation for many individuals, and therefore *Human Security*. However, as Demetriades and Esplen explain, due to

⁶⁷⁰ Sawas et al., "Gender, Climate & Security: Sustaining Inclusive Peace on the Frontlines of Climate Change," 19.

⁶⁷¹ Dominique A. Cadilhac et al., "The Health and Economic Benefits of Reducing Intimate Partner Violence: An Australian Example," *BMC Public Health* 15 (July 9, 2015): 625, <https://doi.org/10.1186/s12889-015-1931-y>.

⁶⁷² Patricia Alexander, Alice Nabalamba, and Maurice Mubila, "The Link Between Climate Change, Gender and Development in Africa," *The African Statistical Journal* 12 (May 2011): 119–40; Luis Enrique Escalante and Helene Maisonnave, "Assessing the Impacts of Climate Change on Female Poverty and Domestic Burdens: A Bolivian Case Study" (Normandy: Le Havre University, Department of Economics, 2020), https://genderandsecurity.org/sites/default/files/Escalante_Maisonnave_-_Impacts_of_Climate_Change_on_Ws_Poverty_Domestic_Burdens_Bolivia.pdf; Senay Habtezion, "Gender and Climate Finance - Policy Brief (Asia and the Pacific)," Technical Report (United Nations Development Programme, January 2013), https://www.researchgate.net/publication/282662844_Gender_and_Climate_Finance_-_Policy_Brief_Asia_and_the_Pacific; Farzana Afridi, Kanika Mahajan, and Nikita Sangwan, "The Gendered Effects of Climate Change: Production Shocks and Labor Response in Agriculture," *SSRN Electronic Journal*, 2021, <https://doi.org/10.2139/ssrn.3892596>.

customary laws that prevent women from owning land or receiving loans, women are often unable to invest in the tools and implements needed to adapt their income-generating activities to climate change (Linkage 3.1.5.G).⁶⁷³ These challenges become even more problematic for women-headed households. Additionally, since men define livelihood strategies for women in many cultures, women may not have the agency they need to learn and implement new adaptation strategies.⁶⁷⁴ A systematic review by Call and Sellers has shown that, (1) women tend to engage less with sustainable livelihood interventions (i.e. interventions fail to reduce gender disparities), often due to restricted mobility, but (2) when women do engage, income gains are often accompanied by labour burden increases as well—the costs and competition for labour may be more challenging for women if their overall income is less than men’s (Linkage 3.1.5.H).⁶⁷⁵

In urban environments, studies of shocks on employment, such as those that are likely to arise due to climate change, underscore the low value placed on women’s labour force participation. A World Bank meta-study of crises showed that both women and men faced lost work and reduced incomes, accompanied by increased psychological stress, and pressure to find alternative work.⁶⁷⁶ In most countries, however, women in low-paying occupations experienced the highest job losses, received less or no severance payments (compared to men who receive customary amounts), and when companies

⁶⁷³ Justina Demetriades and Emily Esplen, “The Gender Dimensions of Poverty and Climate Change Adaptation,” in *Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*, ed. Robin Mearns and Andrew Norton, New Frontiers of Social Policy (Washington, DC: World Bank Publications, 2009), 134.

⁶⁷⁴ Kheira Tarif, “Climate Change and Violent Conflict in West Africa: Assessing the Evidence” (Stockholm International Peace Research Institute, February 2022), 7, <https://doi.org/10.55163/VHIY5372>.

⁶⁷⁵ Maia Call and Samuel Sellers, “How Does Gendered Vulnerability Shape the Adoption and Impact of Sustainable Livelihood Interventions in an Era of Global Climate Change?,” *Environmental Research Letters* 14, no. 8 (July 2019): 083005, <https://doi.org/10.1088/1748-9326/ab2f57>.

⁶⁷⁶ Carolyn Turk, “Anatomy of Coping : Evidence from People Living through the Crises of 2008–11,” in *Living Through Crisis: How the Food, Fuel, and the Financial Shocks Affect the Poor*, by Rasmus Heltberg, Naomi Hossain, and Anna Reva, New Frontiers of Social Policy (Washington, DC: The World Bank, 2012), 11, <https://doi.org/10.1596/1813-9450-5957>.

began to recover, faced gender discrimination by employers who prefer to re-hire men (Linkage 3.1.5.I).⁶⁷⁷ When women are able to re-enter the workforce, they often work within the informal sector for low pay, little to no worker protections or benefits, long hours, and difficult commutes.⁶⁷⁸ Moreover, in terms of intersectionality, when women enter urban work environments, they may be exposed to exploitative employment systems (especially with multiple and overlapping identities) which reinforce gender disparities and prevent women from acquiring climate-smart vocational skills and training.⁶⁷⁹ Also of note is the *Gender Equality-Security Mechanism of SD-surplus males-unemployment* at work: when a woman's higher labour force participation or employment is combined with a man's unemployment, this can increase rates of SGBV against women, which, as already stated, can increase a woman's *Susceptibility* to climate risks and impact community stability (Linkage 3.1.5.J).⁶⁸⁰

One final note: climate change is likely to have an impact on rates of *Unemployment* among men as well. As with women, men who work in the agricultural sector may need to adapt or find new work, though as Call and Sellers point out, men are often better able to adapt to such shifts.⁶⁸¹ Extreme weather events that cause flooding and waterlogging may decrease labour opportunities for men, and can lead to significant material and financial losses as well.⁶⁸² When men experience economic instability as a

⁶⁷⁷ Turk, "Anatomy of Coping," 11.

⁶⁷⁸ Turk, "Anatomy of Coping," 12.

⁶⁷⁹ "Gender and Prosperity of Cities, State of Women in Cities 2012/2013 | UN-Habitat" (UN-HABITAT, 2013), 45, <https://unhabitat.org/gender-and-prosperity-of-cities-state-of-women-in-cities-20122013>.

⁶⁸⁰ Christopher Cramer, "Unemployment and Participation in Violence," Background Paper 2011 (World Development Report, November 16, 2010), 24, <http://web.worldbank.org/archive/website01306/web/pdf/wdr%20background%20paper%20-%20cramer.pdf>.

⁶⁸¹ Call and Sellers, "How Does Gendered Vulnerability Shape the Adoption and Impact of Sustainable Livelihood Interventions in an Era of Global Climate Change?"

⁶⁸² Sogani, "Gender Approaches in Climate Compatible Development," 19.

result of lost employment, their *Human Security* will also be negatively impacted, making many men less able to weather future climate crises (Linkage 3.1.5.K). For instance, as climate change has increasingly threatened the fishing industry, fishing companies have resorted to human trafficking and forced labour to operate, often trapping men in slave-like working conditions (Linkage 3.1.5.L).⁶⁸³

Importantly, however, some communities have complex livelihood adaptation strategies which allow them to adopt new sources of income when such environmental changes occur.⁶⁸⁴ Livelihood interventions, new (agriculture) technologies, and adaptive strategies are often designed for men or taken up more readily by men than women, which may insulate them from some climate-related employment and conflict risks.⁶⁸⁵ Furthermore, in many cases, changes in men's employment (such as due to displacement) frequently leads to a reconstruction of masculinities narratives as men look for new ways to find meaning. For instance, in a study of men's displacement in several Asian countries, Sikka found that across several different groups, reconfiguration of masculinities was often accompanied by shifts in gender relations, in most cases resulting in a maintenance of power imbalances in favour of men.⁶⁸⁶

⁶⁸³ Nicola S. Pocock et al., "'Because If We Talk about Health Issues First, It Is Easier to Talk about Human Trafficking'; Findings from a Mixed Methods Study on Health Needs and Service Provision among Migrant and Trafficked Fishermen in the Mekong," *Globalization and Health* 14, no. 1 (May 9, 2018), <https://doi.org/10.1186/s12992-018-0361-x>; David Brown et al., "Modern Slavery, Environmental Degradation and Climate Change: Fisheries, Field, Forests and Factories," *Environment and Planning E: Nature and Space* 4, no. 2 (2021): 191–207, <https://doi.org/10.1177/2514848619887156>.

⁶⁸⁴ N. A. Omolo, "Gender and Climate Change-Induced Conflict in Pastoral Communities: Case Study of Turkana in Northwestern Kenya," *African Journal on Conflict Resolution* 10, no. 2 (2010), <https://doi.org/10.4314/ajcr.v10i2.63312>.

⁶⁸⁵ Sophia Huyer, "Closing the Gender Gap in Agriculture," *Gender, Technology and Development* 20, no. 2 (January 1, 2016): 107, <https://doi.org/10.1177/0971852416643872>.

⁶⁸⁶ Gaurav Sikka and Yong Ooi Lin Carol, "Dam-Induced Displacement and Resettlement and Masculinities: The Case of India and Malaysia," *Gender, Place & Culture* 29, no. 10 (2022): 1353–75, <https://doi.org/10.1080/0966369X.2021.1931047>.

The preceding analysis has shown that both women and men need stable employment that pays a living wage in order to maintain climate security, but that women tend to be more deeply impacted by increased *Unemployment* caused by climate change due to increased UCDW burdens (and therefore lower paid employment); increased exposure to SGBV (and therefore diminished ability to work); greater environment-based and urban-based job losses; and fewer opportunities to learn climate adaptive tools and techniques. Resultantly, the hindering of women's empowerment, political representation, and climate adaptive education will lower women's resources and networks, and is likely to diminish their contributions to community stability and conflict resolution, according to Forsberg and Olsson's theory.

Despite the difficulties that women are likely to face in staying employed in both rural and urban environments (as noted: increased UCDW burdens, increased exposure to SGBV higher job losses, and lack of access to climate adaptive tools and techniques), as climate disruption intensifies, urban environments may offer women greater economic empowerment. As such, a gender transformative approach to addressing climate-caused *Unemployment* would capitalize on opportunities to offer women skill development, investment resources, entrepreneurship opportunities, strategic development, and innovation options, all of which can support higher rates of employment among for them.⁶⁸⁷ Research has also shown that when empowered, women tend to take active roles in supporting one another through livelihood shifts. Coppock and Dest have found that women's collective action in pastoral regions of Kenya (especially in poorer communities in densely-populated regions) has resulted in the formation of groups that pooled funds for communal savings which were used to support larger collective farming operations,

⁶⁸⁷ "Gender and Prosperity of Cities, State of Women in Cities 2012/2013 | UN-Habitat," 46.

ultimately reinvesting profits over time into *Education*, *WASH* systems, and supporting the sick, elderly, and vulnerable members.⁶⁸⁸ This is yet another example of how women may prevent fragility in active, transformative roles. To take advantage of the benefits urban spaces offer, many women will have to migrate from their rural homes into urban centres, though in many communities, women may be less likely to migrate during periods of climate shock (though the opposite has also been found to be true).⁶⁸⁹ Nevertheless, once women do migrate, finding new work can offer women many advantages. For instance, new or better employment may give women greater bargaining power within the household.

Several challenges would need to be addressed in a gender transformative approach to *Unemployment*. To start, as noted, when women gain better employment, they often also experience physical reprisal/backlash from unemployed men partners.⁶⁹⁰ This would need to be addressed at the household, gender norms level. Furthermore, Lama et al. have noted, “Empowerment programmes and policies – particularly those promoting alternative livelihoods – may in fact become a burden without actual benefits or ownership of resources, and may end up doing very little when it comes to reducing

⁶⁸⁸ D. Layne Coppock and Solomon Desta, “Collective Action, Innovation, and Wealth Generation Among Settled Pastoral Women in Northern Kenya,” *Rangeland Ecology and Management* 66, no. 1 (January 2013): 95–105, <https://doi.org/10.2111/REM-D-11-00211.1>.

⁶⁸⁹ Afridi, Mahajan, and Sangwan, “The Gendered Effects of Climate Change”; Namrata Chindarkar, “Gender and Climate Change-Induced Migration: Proposing a Framework for Analysis,” *Environmental Research Letters* 7, no. 2 (June 2012), <https://doi.org/10.1088/1748-9326/7/2/025601>; Lori M Hunter and Emmanuel David, “Climate Change and Migration: Considering the Gender Dimensions” (Working Paper, Institute of Behavioral Science, University of Colorado at Boulder, November 2009), 7, https://genderandsecurity.org/sites/default/files/Hunter_David_-_Climate_Change_Migratn.pdf.

⁶⁹⁰ Eugenia Canessa and Gianna Claudia Giannelli, “Women’s Employment and Natural Shocks,” *IZA Discussion Papers, Institute of Labor Economics*, Discussion Paper Series, 2021, 54; Yoo-Mi Chin, “Male Backlash, Bargaining, or Exposure Reduction?: Women’s Working Status and Physical Spousal Violence in India,” *Journal of Population Economics* 25, no. 1 (2012): 175–200.

gender inequities.”⁶⁹¹ Consequently, new employment opportunities for women should be accompanied by innovative structures and institutions that support women’s ownership of assets and land, bank accounts, and so on.

3.1.5.2. Unemployment and National/International Security

Aside from the gendered *Human Security* impacts of climate change on employment, GCS-Factor *Unemployment* may also play a role in increasing *National/International Security* risks along several pathways.⁶⁹² Staying first with the *Gender Equality-Security Mechanism* of *SD-surplus males-unemployment*, certainly there are risks that climate change will have a deleterious impact on men’s employment as well as women’s, depending on the location and sector. Climate-related triggers that lead to a larger number of men without employment, especially when such conditions prevent men from fulfilling their culturally ascribed masculine roles, could go on to facilitate their recruitment into extremist or armed groups (Linkage 3.1.5.M). Additionally, whether because of slow-onset environmental changes or acute climate-caused disasters, men are more likely than women to migrate in order to find work, which would have a deleterious impact on men’s *Human Security* in general. Furthermore, if such migration leads to a surplus of males in urban environments, such conditions may trigger state-based conflict

⁶⁹¹ Phudoma Lama, Mo Hamza, and Misse Wester, “Gendered Dimensions of Migration in Relation to Climate Change,” *Climate and Development* 13, no. 4 (April 21, 2021): 326–36, <https://doi.org/10.1080/17565529.2020.1772708>.

⁶⁹² For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

in densely populated centres, suggesting the *SD-urban surplus males-state-based conflict Gender Equality-Security Mechanism* may come into play as well (Linkage 3.1.5.N).⁶⁹³

What other potential impacts might increase *Unemployment* have on rates of *crime/violence/extremism*? There is a rich literature showing a direct link between *Unemployment* rates and criminal offending and re-offending, with relative criminology rates among men increasing more than among women, though rates among women also tend to increase (Linkage 3.1.5.O).⁶⁹⁴ Empirical analysis of crime and socioeconomic factors in Europe by Coccia suggests a possible link between lower socioeconomic status due to *Unemployment* and intentional homicides.⁶⁹⁵ Furthermore, as noted in section 3.1.4.2, research by Andersen and others suggests public support programs offered to unemployed individuals reduces criminal activity.⁶⁹⁶ This aligns well with the *Gender Equality-Security Mechanism* that suggests in communities with *Socioeconomic Development* issues that result in *surplus unemployed males*, recruitment of these males into criminal organizations and rebel groups may be much easier. Likewise, there is a

⁶⁹³ Alice Poncelet et al., “A Country Made for Disasters: Environmental Vulnerability and Forced Migration in Bangladesh,” in *Environment, Forced Migration and Social Vulnerability*, ed. Tamer Afifi and Jill Jäger (Berlin, Heidelberg: Springer Berlin Heidelberg, 2010), 216, https://doi.org/10.1007/978-3-642-12416-7_16; Hugh Roland, “Climate Change-Related Internal Migration among Geographically Isolated Islands in the Central Pacific,” 2018, <https://paa.confex.com/paa/2018/mediafile/ExtendedAbstract/Paper24422/PAA%202018%20Roland.pdf>; Valerie Mueller, Clark Gray, and Douglas Hopping, “Climate-Induced Migration and Unemployment in Middle-Income Africa,” *Global Environmental Change* 65 (November 2020), <https://doi.org/10.1016/j.gloenvcha.2020.102183>; Clark Gray and Valerie Mueller, “Drought and Population Mobility in Rural Ethiopia,” *World Development* 40, no. 1 (January 2012): 134–45, <https://doi.org/10.1016/j.worlddev.2011.05.023>.

⁶⁹⁴ Patrick Bennett and Amine Ouazad, “Job Displacement, Unemployment, and Crime: Evidence from Danish Microdata and Reforms,” *Journal of the European Economic Association* 18, no. 5 (October 1, 2020): 2182–2220, <https://doi.org/10.1093/jeea/jvz054>; Manudeep Bhuller et al., “Incarceration, Recidivism and Employment” (Cambridge, MA: National Bureau of Economic Research, 2016), 93, https://www.nber.org/system/files/working_papers/w22648/w22648.pdf; Garima Siwach, “Unemployment Shocks for Individuals on the Margin: Exploring Recidivism Effects,” *Labour Economics* 52 (June 2018): 231–44, <https://doi.org/10.1016/j.labeco.2018.02.001>.

⁶⁹⁵ Matteo Bellitto and Mario Coccia, “Possible Relations between Crime, Immigration and Socioeconomic Factors,” *National Research Council of Italy*, no. 33 (2018): 1–28.

⁶⁹⁶ Andersen, “Unemployment and Crime.”

growing body of research showing a strong connection between *Unemployment* and violent extremism, especially among young men (Linkage 3.1.5.M).⁶⁹⁷ The links between *Unemployment* and *anti-state grievances* are also well-established in research globally.⁶⁹⁸ As such, motivations related to the *pull of networks* as well as perceived *exposure to violence/repression* may play roles in men's involvement in *crime, extremist violence*, or *anti-state grievance* protests, though explicit research into these motivations is required to confirm this hypothesis.

Climate-caused *Unemployment* among men in rural environments may also trigger *grievances between societal groups*. As previously discussed, research by Forsberg and Olsson suggests that recruitment into rebel or paramilitary networks is much more likely along gendered *Socioeconomic Development* pathways when climate change generates high *Unemployment* rates among surplus males, thereby increasing state-based violence and non-state based violence in both rural and urban centres.⁶⁹⁹ Their

⁶⁹⁷ Ahmet Guler, Kaan Boke, and Lucy K. Tsado, "Analyzing Nigerians' Perspectives on the Causes of Violent Extremism, Government Responses, and Possible Solutions," *Security Journal*, February 16, 2022, <https://doi.org/10.1057/s41284-022-00330-9>; Benjamin Crost, "Economic Conditions and the Rise of Anti-Democratic Extremism," *Empirical Studies of Conflict Project (ESOC) Working Papers*, Empirical Studies of Conflict Project (ESOC) Working Papers (Empirical Studies of Conflict Project, March 2021), <https://ideas.repec.org/p/pri/esocpu/24.html>; Drew Mikhael and Julie Norman, "Refugee Youth, Unemployment and Extremism: Countering the Myth," *Forced Migration Review, Refugee Studies Centre: Oxford Department of International Development*, Syrians in displacement, 57 (February 2018), <https://psychotraumanet.org/sites/default/files/documents/mikhael-norman-Refugee%20youth%2C%20unemployment%20and%20extremism.pdf>; Mohamed Abdel Jelil et al., *Unemployment and Violent Extremism: Evidence from Daesh Foreign Recruits* (Washington, DC: World Bank, 2018), <https://doi.org/10.1596/1813-9450-8381>.

⁶⁹⁸ Simon Saradzhyan, "Drivers of Anti-State Violence in Russia : What Made Dagestan Surpass All Other Russian Regions in Generating Such Violence in 2005-2015?" (PhD Dissertation, King's College London, 2021), [https://kclpure.kcl.ac.uk/portal/en/theses/drivers-of-antistate-violence-in-russia\(2b23f702-654a-46c4-a320-b4700c295d8f\).html](https://kclpure.kcl.ac.uk/portal/en/theses/drivers-of-antistate-violence-in-russia(2b23f702-654a-46c4-a320-b4700c295d8f).html); Olaniyi Evans and Ikechukwu Kelikume, "The Impact of Poverty, Unemployment, Inequality, Corruption and Poor Governance on Niger Delta Militancy, Boko Haram Terrorism and Fulani Herdsmen Attacks in Nigeria," *International Journal of Management, Economics and Social Sciences (IJMESS)* 8, no. 2 (2019): 58–80, <https://doi.org/10.32327/IJMESS/8.2.2019.5>; Usman Abbo and Zawayah Binti Mohd Zain, "Democracy, Violence and Insecurity: Perversion And Implications On The Youth In Northern Nigeria" (Regional Politics, Administration and Development 2020, Indonesia: The International Seminar on Regional Politics, Administration and Development, 2020), 176–82.

⁶⁹⁹ Forsberg and Olsson, "Examining Gender Inequality and Armed Conflict at the Subnational Level."

research is backed up by numerous studies. For instance, in rural Turkana (Kenya), Omolo has found that where environmentally based livelihoods such as animal husbandry are primary sources of employment, traditional raiding practices have been used neighbour-against-neighbour to expand grazing land, gain water access, restock of livestock, and increase status.⁷⁰⁰ Increased drought has intensified competition over herding resources, and this has increased ‘sponsored’ raiding using ever-more guns, which has led to a rise in rates of conflict and death.⁷⁰¹ Diving further into the motivations for *Unemployment* violence, Cramer finds that *Unemployment* is relevant in discussions of violence because of employment’s role as a source of status or loci of struggle over norms of ideologically-validated identity and fairness, particularly for men (but also where issues of fairness of identity intersect with race, ethnicity, or religion).⁷⁰² Cramer also finds two pathways (more commonly observed among men) for understanding *Unemployment* and violence:⁷⁰³

1. Broader structural and policy factors (such as unjust social orders) combined with unemployment are often the impetus for joining violent rebellions, rather than unemployment in isolation.
2. Reasons for joining guerilla forces, gangs, and militias often stem more from a desire to escape boredom, stifling family situations, or gerontocracy than from unemployment alone.

Cramer also notes that employment that is demeaning and monotonous with little chance of promotion or skill development, poor wages, and exploitative or coercive conditions,

⁷⁰⁰ Omolo, “Gender and Climate Change-Induced Conflict in Pastoral Communities.”

⁷⁰¹ Omolo, “Gender and Climate Change-Induced Conflict in Pastoral Communities.”

⁷⁰² Cramer, “Unemployment and Participation in Violence,” 24.

⁷⁰³ Cramer, “Unemployment and Participation in Violence,” 24.

can also lead to individuals joining insurgencies, gangs, and militias.⁷⁰⁴ With Cramer's findings in mind, motivations such as *pull of networks* and *exposure to violence/repression* may be important determinants of whether men are recruited and engage in violence. However, while this literature suggests that *Unemployment* in urban environments could play an important role in *grievances between societal groups*, some recent research has indicated that it's not a straightforward connection.⁷⁰⁵ Further exploration of this linkage is therefore required.

Women's climate-induced *Unemployment* can be examined on the *interstate tensions* context through a labour force participation lens. As already noted, in their 'Patrilineal/Fraternal Syndrome' study, Hudson et al. show that countries with high Syndrome scores have significantly lower female labour force participation (this likely reflects the relative human *insecurity* of women, and therefore lower overall *societal capacity* in such communities).⁷⁰⁶ As such, climate-induced *Unemployment* among women may indicate increased climate *Susceptibility* to conflict given that high scoring countries tend to experience greater instability and insecurity, lower levels of overall well-being, and decreased prosperity.⁷⁰⁷ Here, too, more research is required.

As the previous analysis suggests, of all the GCS-Factors discussed in this study, *Unemployment* may have the strongest ties between gender, climate change, and security. Given the role employment plays in culturally ascribed roles, particularly for men, lack of employment can be a significant motivating factor for people looking to express their frustration and find solutions to their emotional distress. Nevertheless, due to the ways in

⁷⁰⁴ Cramer, "Unemployment and Participation in Violence," 24.

⁷⁰⁵ Cramer, "Unemployment and Participation in Violence."

⁷⁰⁶ Hudson, Bowen, and Nielsen, "The Effects by the Numbers," 233.

⁷⁰⁷ Hudson, Bowen, and Nielsen, "The Effects by the Numbers," 233.

which *Unemployment* may also impact women's climate security, and the role women's economic security plays in community stability, addressing *both* women's and men's employment challenges would be necessary to minimize the negative consequences of this gendered factor.

3.1.5.3. Summary of Gender-Climate-Security and Unemployment

A summary visualizing Gender-Climate-Security connections to Unemployment can be found in Figure 19. A list of Diagnostic Questions in Table 59 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

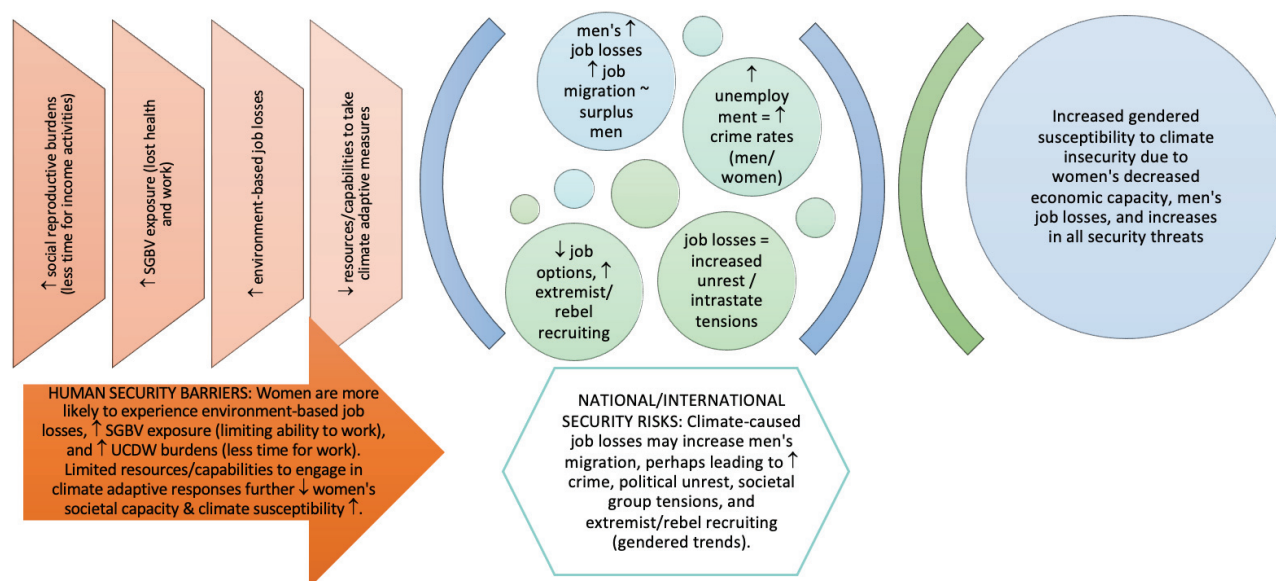


Figure 19. Gendered Climate Security Vulnerabilities in Unemployment.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Unemployment.

3.1.6. Socioeconomic Development

Table 36. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Socioeconomic Development.

<p>Dominant Approach: Examines the degree to which inequality and poverty exclude significant parts of the population from society, thereby limiting their socioeconomic development.⁷⁰⁸</p>
<p>FPEcon/FPEcol Approach: A gender-blind understanding of socioeconomic development flattens the hierarchies that impact how different groups access society. Importantly, the WPS agenda has begun to take socioeconomic development into consideration through UNSCR 2122 of 2013, which is an amendment to UNSCR 1325 that provides a justification for considering socioeconomic elements of security in the WPS agenda. It states:</p> <p style="padding-left: 40px;">sustainable peace requires an integrated approach based on coherence between political, security, development, human rights, including gender equality, and rule of law and justice activities ... [and recognizes] the need to address the gaps and strengthen links between the United Nations peace and security in the field, human rights and development work as a means to address root causes of armed conflict and threats to the security of women and girls in the pursuit of international peace and security.⁷⁰⁹</p> <p>Several feminist theories offer perspectives for understanding socioeconomic development in the gender and climate security nexus. First, in writing about the importance of women's equal power in all aspects of the WPS agenda (participation, protection, prevention, relief and recovery), FPEcon True argues, "Putting SCR 1325 into practice by promoting women's participation in peace processes, however, depends on efforts to change the gendered social and economic inequalities that currently constrain their participation and underlie their vulnerability in conflict and post-conflict settings."⁷¹⁰ Here, social reproduction theory will once again be useful in understanding the role paid and unpaid work plays in socioeconomic development and how that connects to climate security.</p> <p>Furthermore, FPEcols Goldman and <u>Schurman</u> have developed a framework for</p>

⁷⁰⁸ Remmits, Dick, and Rademaker, "Climate Security Assessment," 93.

⁷⁰⁹ "United Nations Security Council Resolution 2122," S/RES/2122(2013) § (2013), <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N13/523/44/PDF/N1352344.pdf?OpenElement>.

⁷¹⁰ Jacqui True, "The Political Economy of Gender in UN Peacekeeping," in *Rethinking Peacekeeping, Gender Equality and Collective Security*, ed. Gina Heathcote and Dianne Otto (London: Palgrave Macmillan UK, 2014), 246, https://doi.org/10.1057/9781137400215_13.

examining how gendered political economic structures determine resource access, use, and control.⁷¹¹ Adding to this, Souyeon suggests that customary laws and gender norms often impede women's access to systems, such as property rights and resource ownership.⁷¹² According to Kansanga et al. and Jarosz, FPEcol also considers how gendered divisions of labour, women's environmental knowledge, and family hierarchies impact social and natural resource use and distribution.⁷¹³ With these theories in mind, FPEcol informs a gendered understanding of climate security by illuminating how social structures and institutions often impede women's socioeconomic advancement and by extension their climate security. Importantly, FPEcol also takes seriously intersectional discrimination that further diminishes socioeconomic development of various groups of minority women.

While socioeconomic development involves many elements, such as urban/rural infrastructure, economic activity, education, social institutions and structures, and demographics, many of these elements are covered in detail under other GCS-Factors. For the purposes of this proposed framework, therefore, socioeconomic development will consider primarily how inequalities exclude significant parts of the population from broader societal structures (financial, digital, and decision-making), thereby increasing their susceptibility to climate change.

Brief comparison of dominant and feminist definitions of Socioeconomic Development.

⁷¹¹ Paul Robbins, *Political Ecology: A Critical Introduction*, 3rd ed. (Malden: John Wiley & Sons, 2019), <https://www.wiley.com/en-us/Political+Ecology%3A+A+Critical+Introduction%2C+3rd+Edition-p-9781119167440>; Michael Goldman and Rachel Schurman, "Closing the 'Great Divide': New Social Theory on Society and Nature," *Annual Review of Sociology* 26 (August 2000): 563–84, <https://doi.org/10.1146/annurev.soc.26.1.563>.

⁷¹² Souyeon Nam, "Toward Everyday Practices of Gender: Implications of Feminist Political Ecology for Gender Mainstreaming in Korean ODA," *Asian Journal of Women's Studies* 24, no. 4 (October 2, 2018): 7, <https://doi.org/10.1080/12259276.2018.1531812>.

⁷¹³ Moses Kansanga et al., "A Feminist Political Ecology of Agricultural Mechanization and Evolving Gendered On-Farm Labor Dynamics in Northern Ghana," *Gender, Technology and Development* 23, no. 3 (November 29, 2019): 1–27, <https://doi.org/10.1080/09718524.2019.1687799>; Lucy Jarosz, "Nourishing Women: Toward a Feminist Political Ecology of Community Supported Agriculture in the United States," *Gender, Place and Culture* 18, no. 3 (May 19, 2011): 307–26, <https://doi.org/10.1080/0966369X.2011.565871>.

Table 37. Short Overview of the Socioeconomic Development Gender-Climate-Security Linkages.

Human Security ⁷¹⁴	Gender Equality-Security Mechanisms
Linkage 3.1.6.A. Climate change is likely to increase rates of SGBV and human trafficking → survivors may experience lower socioeconomic status → may be exposed to increased risks of SGBV and human trafficking in a vicious cycle	<i>Societal capacity</i>
Linkage 3.1.6.B. Climate disasters often create a need for financial support (cash, insurance payments, loans) → women are frequently excluded from all types of banking and property ownership → women are more likely to be at risk for further financial impacts and lower socioeconomic status	<i>Societal capacity</i>
Linkage 3.1.6.C. Following climate shocks, financial tools become important for recovery → financial exclusion commonly bars women from accessing tools and services because of ‘individual effort/entrepreneurship/market opportunities’ criteria that replicate gendered power structures → when women can access financial support services, they often use the funds for social reproduction, which adds to feminized responsibilities for recovery → women may recover more slowly and less completely	<i>Societal capacity</i>
Linkage 3.1.6.D. Women’s lower socioeconomic status (due to UCDW (time constraints), lack of education, gendered norms, and economic/legal barriers) frequently prevents their participation in decision-making spaces → women may be unable to address their unique climate preparation and adaptation concerns in the public sphere	<i>Societal capacity</i>
Linkage 3.1.6.E. The lower socioeconomic status of women (and indigenous peoples) may prevent their involvement in natural resource management → may result in higher rates of deforestation and land degradation → may lower	<i>Societal capacity</i>

⁷¹⁴ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson’s *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three ‘*socioeconomic development*’ (SD), (referred to as ‘*SD-urban surplus males-state-based conflict*,’ ‘*SD-surplus males-non-state conflict*,’ and ‘*SD-surplus males-unemployment*’).

Human Security ⁷¹⁴	Gender Equality-Security Mechanisms	
the climate security of entire communities		
Linkage 3.1.6.F. Higher UCDW burdens (which impact women more than men) tend to encourage greater natural resource consumption → may intensify poverty and environmental integrity → may increase a community's susceptibility to climate breakdown	<i>Societal capacity</i>	
Linkage 3.1.6.G. Poor socioeconomic conditions (high food insecurity and energy costs) for low-income households (especially in less-developed states) make climate policies (such as increasing women's education to decrease population growth) more difficult to implement → may increase costs and lower efficacy of climate policies → may further decrease system-level ability to adapt to and recover from climate change	<i>Societal capacity</i>	
National/International Security ⁷¹⁵	Pathway	Motivational Mechanisms
Linkage 3.1.6.H. Climate breakdown is expected to increase social and economic disparities → criminal offending tends to increase due to adverse socioeconomic conditions in both women and men (though stronger in men)	Crime/violence/extremism	<i>Greater opportunities (more likely women)[§] exposure to violence/repression or revenge (typically men)[§]</i>
Linkage 3.1.6.I. Changes to the climate are likely to increase socioeconomic inequalities → may lead to increased rates of lethal violence, especially among men (more profound in states with weak collective institutions and social protections)	Crime/violence/extremism	<i>Greater opportunities (more likely women) exposure to violence/repression[§] and pull of networks[§]</i>

⁷¹⁵ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security ⁷¹⁵	Pathway	Motivational Mechanisms
Linkage 3.1.6.J. Climate change is expected to increase rates of human migration → migrants may feel economic exclusion in host country → may precipitate increased crime rates	Crime/violence/extremism	[Requires research] <i>Greater opportunities (more likely women)[∅] exposure to violence/repression or revenge (typically men)[∅]</i>
Linkage 3.1.6.K. Environmental, economic, sociocultural, and political-socioeconomic marginalization of groups may intensify due to climate breakdown (more profound for women) → may amplify existing grievances or generate new ones (over water, grazing land, herds, and resources) → may erupt into intrastate/interstate conflicts	Anti-state grievances // Grievances between societal groups // Interstate tensions	<i>Increase survival (both women and men), pull of networks[§] (typically men), and exposure to violence/repression[§]</i>
Linkage 3.1.6.L. Climate change may deteriorate land-based livelihoods → young men may find it difficult to achieve socioeconomic milestones ascribed to manhood → may be more likely to join militant groups to regain status and an income	Anti-state grievances // Grievances between societal groups	<i>SD-surplus males-unemployment (Gender Equality-Security Mechanism) and pull of networks[§] (gendered motivation)</i>

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with [§]; those with no research with [∅]. For a full explanation of each Linkage, see sections 3.1.6.1 and 3.1.6.2.

3.1.6.1. Socioeconomic Development and Human Security

Socioeconomic Development is considered a pre-existing factor that impacts the extent to which a system or individual can adapt to and recover from future crises, such

as climate breakdown.⁷¹⁶ Climate change and *Socioeconomic Development* are likely to interact with gendered structures, institutions, and resources along several pathways that effect *Human Security*. Critically, taking direction from True, gendered socioeconomic inequality should be examined not as the experience of absolute inequality levels, but rather as relative levels of inequality that give some people access to assets and spaces while barring others from those assets and spaces, for instance women's level of insecurity relative to that of men in their communities.⁷¹⁷ With this in mind, the *societal capacity Gender Equality-Security Mechanism* is most relevant for this GCS-Factor within the *Gendered Climate-Security Lifecycle* because of the ways in which socioeconomic insecurity diminishes people's (and therefore their community's) ability to adapt to and recover from climate change, potentially pushing a system closer to climate-related crime, violence, and conflict.⁷¹⁸ The ensuing discussion will cover several *Gender-Climate-Security Linkages*, including how socioeconomic status increases risks of SGBV and human trafficking (which may intensify inequalities and lower climate adaptability and recovery); gender inequalities in access to financial tools and property ownership; gendered access to decision-making bodies; and the role that socioeconomic+gender inequality play in reducing the efficacy of climate policies, which may further entrench socioeconomic imbalances and impede systems from adapting and recovering from climate change.

⁷¹⁶ John D. Steinbruner, Paul C. Stern, and Jo L. Husbands, "Climate Change, Vulnerability, and National Security: A Conceptual Framework," in *Climate and Social Stress: Implications for Security Analysis* (Washington, DC: National Academies Press, 2013), 42, <https://doi.org/10.17226/14682>.

⁷¹⁷ Jacqui True, "The Political Economy of Violence Against Women: A Feminist International Relations Perspective," *The Australian Feminist Law Journal* 32 (2010): 39–59.

⁷¹⁸ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

First, and perhaps most obviously, as True has found, women who experience greater socioeconomic inequality compared to men may more frequently be victims of SGBV and of human trafficking.⁷¹⁹ As discussed in several other GCS-Factors, climate change will likely increase rates of SGBV in several ways (due to increased UCDW responsibilities and the risks therein; following climate-related disasters; because of increased household food insecurity; or due to lower levels of education). Consider that femicides have increased in some economic development zones in reaction to the feminization of labour, and as previously mentioned, male violence against women has been shown to increase in reaction to male *Unemployment* or when a man's household power is undermined.⁷²⁰ Additionally, Smith notes that climate change is expected to increase rates of human trafficking (whose victims are frequently women and children, but also men and boys).⁷²¹ Since SGBV and human trafficking reduce a person's economic stability, physical and mental health, and sometimes social standing, in a vicious cycle, SGBV and trafficking may very well increase levels of socioeconomic inequality, and further erode individuals' abilities to adapt to and recover from climate disasters (Linkage 3.1.6.A). Moreover, the research of Castañeda et al. shows that when gendered norms and laws remain unchanged, SGBV is often used as an intimidation tactic (especially against low-power women) to gain control of resources and/or to scare those attempting to protect resources.⁷²² As such, gendered power imbalances within the

⁷¹⁹ True, "The Political Economy of Violence Against Women."

⁷²⁰ True, "The Political Economy of Violence Against Women."

⁷²¹ Mikaila V Smith, "Applying the United Nations Trafficking Protocol in the Context of Climate Change," *Chicago Journal of International Law* 22, no. 1 (June 22, 2021): 299–334.

⁷²² Carney I. Castañeda et al., *Gender-Based Violence and Environment Linkages* (IUCN, 2020), <https://doi.org/10.2305/IUCN.CH.2020.03.en>.

home and society must be addressed in order to effect change in rates of SGBV, human trafficking, and resulting socioeconomic inequalities.

Second, social structures and institutions within the financial sector often impede women's socioeconomic advancement and, by implication, their climate security as well. *Human Security* depends in part on one's ability to access savings accounts, loans, and insurance to invest in climate-resilient agriculture equipment, businesses, and *Education* (topics covered in other GCS-Factors).⁷²³ On the topic of access to digital spaces (a crucial component of modern *Socioeconomic Development*), concepts developed in other GCS-Factors are relevant here. In particular, as explored in greater depth in the *Early Warning* section of this study, there are significant gender divides in ownership of mobile phones and use of the internet, both of which are required for many modern banking and financial services.⁷²⁴ Furthermore, section 2.1.1.1 explores aspects of gendered access to land (phone) lines, mobile phones, the internet, etc., as well as how digital spaces involve coproduction between men and technology (those who design technologies also design society, often in highly gendered ways).⁷²⁵ Digital technologies are crucial lifelines for addressing the urgent financial needs of people facing climate disasters that are predicted to cause property damage, destroy livelihoods, and displace people.⁷²⁶ Mobile money and digital wallet services will be of particular importance for receiving disaster support from

⁷²³ Volz Ulrich et al., "Inclusive Green Finance: From Concept to Practice" (Kuala Lumpur; London: Alliance for Financial Inclusion and SOAS, University of London, 2020), https://eprints.soas.ac.uk/34540/1/AFI_IGF_SOAS_digital.pdf.

⁷²⁴ Santosham and Lindsey, "Connected Women: Bridging the Gender Gap - Mobile Access and Usage in Low- and Middle-Income Countries"; Melhem, Morell, and Tandon, "Information and Communication Technologies for Women's Socio-Economic Empowerment."

⁷²⁵ Faulkner, "The Technology Question in Feminism"; Bray, "Gender and Technology."

⁷²⁶ A. H. M. Belayeth Hussain et al., "Financial Inclusion, Financial Resilience, and Climate Change Resilience," in *Handbook of Climate Change Management: Research, Leadership, Transformation*, ed. Walter Leal Filho, Johannes Luetz, and Desalegn Ayal (Cham: Springer International Publishing, 2021), 1–23, https://doi.org/10.1007/978-3-030-22759-3_19-1.

governments and NGOs, social cash from family and friends, and insurance payments.⁷²⁷

Yet, it is well-established that gendered structural barriers frequently prevent women from accessing digital (and traditional) financial tools and services (such as bank accounts, loans, and insurance), owning land, or participating in household financial decision-making, all of which increase women's *Susceptibility* to climate risks.⁷²⁸ All of these factors will make women more susceptible to climate risks and impacts, thereby further lowering their socioeconomic status (Linkage 3.1.6.B).

Financial inclusion policies have been developed by governments and organizations to meet UN Sustainable Development Goals (SDG) such as SDG-1 which aims to end poverty everywhere, yet despite such inclusion goals, these policies are still highly gendered according to feminist scholar Natile. First, Natile suggests that commercially oriented means to solve financial exclusion problems will be unsuccessful if they do not address the deep structural gender inequalities within formal markets.⁷²⁹ Second, Natile argues that the instrumentalization of financial inclusion for gender-equal *Socioeconomic Development* falls short because: (A) when predicated on individual effort, entrepreneurship, and market opportunities, such programs don't redistribute power, and instead replicate existing structures of exclusion; and (B) women use financial tools for social reproduction of their communities (and not solely for

⁷²⁷ Dumisani Chirambo, "Enhancing Climate Change Resilience Through Microfinance: Redefining the Climate Finance Paradigm to Promote Inclusive Growth in Africa," *Journal of Developing Societies* 33, no. 1 (March 2017): 150–73, <https://doi.org/10.1177/0169796X17692474>.

⁷²⁸ James M. Naughton and Anne K. Brady, "Building Resilience to Crisis through Digital Financial Services with a Gender Lens," *Enterprise Development & Microfinance* 33, no. 1 (March 1, 2022): 28–44, <https://doi.org/10.3362/1755-1986.21-00035>; Julia Arnold and Sarah Gammage, "Gender and Financial Inclusion: The Critical Role for Holistic Programming," *Development in Practice* 29, no. 8 (November 17, 2019): 965–73, <https://doi.org/10.1080/09614524.2019.1651251>.

⁷²⁹ Serena Natile, *The Exclusionary Politics of Digital Financial Inclusion: Mobile Money, Gendered Walls*, 1st ed., RIPE Series in Global Political Economy (Abingdon, Oxon, London: Routledge, 2020), 25, <https://doi.org/10.4324/9780367179618>.

themselves), and therefore increased financial access may serve only to add ‘feminized responsibility’ to women’s existing burdens (Linkage 3.1.6.C) (though one could argue men do this as well, though perhaps the extent differs).⁷³⁰ Of note are green financial inclusion (GFI) policies which attempt to simultaneously invest in the environment and enhance sustainability, as well as improve access, usage, and quality of financial products and services, especially for socioeconomically marginalized groups.⁷³¹ However, if GFI programs are not truly gender-transformative (and many do not address underlying power imbalances at all), they may further entrench gendered hierarchies and risk women’s ability to adapt to and recover from climate breakdown.

Third, globally, women are commonly barred from access to decision-making bodies such as community councils and elected government positions that determine crisis prevention and response. As True points out, resolving gendered social and economic inequalities, especially in decision-making spaces, is crucial to women’s full participation in peace processes, including those impacted by climate change. However, when excluded from crucial community-level decisions, women may be unable to have their unique concerns addressed, cannot provide input to environmental peacebuilding, and subsequently may be less prepared for and able to adapt to climate crises (Linkage 3.1.6.D). A World Bank report notes numerous ways in which gendered structural barriers prevent women from participating in decision-making, and thus diminish their access to natural and other resources and increase their *Susceptibility* to climate risks, all of which is summarized in Table 38.⁷³²

⁷³⁰ Natile, *The Exclusionary Politics of Digital Financial Inclusion*, 50.

⁷³¹ Ulrich et al., “Inclusive Green Finance: From Concept to Practice,” 5.

⁷³² “Closing the Gender Gap in Natural Resource Management Programs in Mexico” (Washington, DC: World Bank, 2018), 49,55, <https://doi.org/10.1596/31423>.

Table 38. Gendered Structural Barriers That Prevent Women from Participating in Decision-Making Positions and Spaces.

Basic Barriers to Women Participating in Decision-Making
Time constraints combined with limited public infrastructure (transit for instance) and distance to public offices that hinder women from participating in public decision processes
Application processes that are burdensome, including those that require land ownership verification, language skills (often non-Indigenous languages), technology access and skills, and expensive fees
Tight timelines that preclude communal decision-making by all community members, especially women
Lack of understanding of government institutions, programs, and processes
Legal Barriers to Women Participating in Decision-Making
Household gendered roles and inheritance patterns that exclude women from owning or controlling property
Lack of land tenure, a pre-requisite for applying for incentives or receiving technical assistance or participating in community decisions
Gendered community norms that prevent women from holding positions on local assemblies and governing bodies
Economic Barriers to Women Participating in Decision-Making
Female-headed households trapped in poverty often lack the education required (and exposure to the world outside of their communities) for participation in decision-making processes
Unpaid work responsibilities limit women's time for participation in decision-making spaces

Brief enumeration of structures that frequently prevent women from participating in decision-making as outlined by the World Bank and summarized by the author.⁷³³

Finally, there are several routes by which socioeconomic inequalities may themselves contribute to climate change—an important consideration when exploring

⁷³³ “Closing the Gender Gap in Natural Resource Management Programs in Mexico,” 49,55.

negative feedback loops that may intensify societal inequities and increase *Susceptibility* to climate risks for individuals and communities alike. For instance, socioeconomic inequality can lead to lack of access to land or inadequate land rights, especially for indigenous peoples and women; studies have shown that without indigenous peoples and women's involvement in resource management, higher rates of deforestation and land degradation, and therefore climate change acceleration, often result.⁷³⁴ Consequently, such natural resource mismanagement may make entire communities more susceptible to climate breakdown (Linkage 3.1.6.E). Similarly, people who experience UCDW overloads, which typically disadvantage women's social progress, are likely to increase their consumption of natural resources, and further intensify *Poverty* and climate disruption (Linkage 3.1.6.F).⁷³⁵ On a transnational level looking at the interaction of climate policies and socioeconomic conditions, research by Liu et al. demonstrates that more favourable socioeconomic conditions, especially in less developed states, increases the efficacy and reduces the costs of climate policies; conversely, poor socioeconomic conditions such as higher food insecurity or energy costs for low-income families make climate policies more difficult to implement (Linkage 3.1.6.G).⁷³⁶ For instance, increasing

⁷³⁴ Helen Ding et al., "Climate Benefits, Tenure Costs: The Economic Case for Securing Indigenous Land Rights in the Amazon" (World Resources Institute, 2020), https://wriorg.s3.amazonaws.com/s3fs-public/Climate_Benefits_Tenure_Costs.pdf.

⁷³⁵ "Implications of gender roles in natural resource governance in Latin America and the Caribbean," Text (Economic Commission for Latin America and the Caribbean, January 18, 2021), <https://www.cepal.org/en/insights/implications-gender-roles-natural-resource-governance-latin-america-and-caribbean>.

⁷³⁶ Jing-Yu Liu et al., "The Importance of Socioeconomic Conditions in Mitigating Climate Change Impacts and Achieving Sustainable Development Goals," *Environmental Research Letters* 16, no. 1 (December 22, 2020), <https://doi.org/10.1088/1748-9326/abcac4>.

women's access to *Education* in less-developed regions could help to reduce population growth, which could slow climate change.⁷³⁷

The preceding investigation offers several pathways through which *Socioeconomic Development* may threaten women's climate security: it may lower socioeconomic status that increases risks of SGBV and human trafficking; gender inequalities in access to financial tools and property ownership may increase and further hinder women's *Socioeconomic Development*; gendered lack of access to decision-making bodies may stunt women's abilities to influence socioeconomic conditions; and socioeconomic+gender inequality may play a role in reducing the efficacy of climate policies, which may further entrench socioeconomic imbalances and impede systems from adapting and recovering from climate change. According to Forsber and Olsson, these types of limitations to women's empowerment, political representation, and network development may significantly hamper women's *societal capacity*, and reduce the resources and capabilities they have to participate in community strengthening and peacebuilding.

Addressing the imbalances in power that support the structures barring women from full participation in decision-making (outlined in Table 38) would be required to achieve equal socioeconomic status (and therefore greater climate security), including household and community hierarchies, unequal UCDW responsibilities, access to *Education* and property ownership, and the feminization of *Poverty*. Women's inclusion in decision-making is especially important when it comes to community response plans related to climate breakdown. Only substantive gender equality in decision-making

⁷³⁷ Liu et al., "The Importance of Socioeconomic Conditions in Mitigating Climate Change Impacts and Achieving Sustainable Development Goals," 8.

circles produces more equitable and sustainable outcomes by ensuring excluded groups are permitted to champion their own causes. As previously mentioned, particular attention must be paid to avoiding tokenistic inclusion of women for the purposes of fulfilling the goals of those in power.⁷³⁸ This is more crucial when considering intersectional gender and ethnic minority inequalities.⁷³⁹ Critically, feminist criticisms of the women’s empowerment movement, such as that by Chant and Tantoh et al., point out that if women’s inclusion in decision-making is based on essentialist understandings of gender and/or is only symbolic (without the dismantlement of gender disparities), the benefits to women will be few, if not absent entirely.⁷⁴⁰

3.1.6.2. Socioeconomic Development and National/International Security

As discussed in the previous section, socioeconomic inequalities are expected to increase due to climate change. The research connecting disparities in socioeconomic status and *National/International Security* are at various stages of development regarding the four pathways in this proposed framework.⁷⁴¹ To begin, social and economic marginalizations have long been recognized for their links to *crime/violence/extremism*.⁷⁴²

⁷³⁸ Christabelle S. Moyo, “Active Participation of Rural Women in Developmental Issues: Poverty Alleviation Lessons for South Africa,” *Gender & Behaviour* 12, no. 1 (2014): 5994–6001.

⁷³⁹ Elias, Joshi, and Meinzen-Dick, “Restoration for Whom, by Whom?”

⁷⁴⁰ Sylvia Chant, “Women, Girls and World Poverty: Empowerment, Equality or Essentialism?,” *International Development Planning Review* 38, no. 1 (2016): 1–24, <https://doi.org/10.3828/idpr.2016.1>; Henry Bikwibili Tantoh et al., “Gender Roles, Implications for Water, Land, and Food Security in a Changing Climate: A Systematic Review,” *Frontiers in Sustainable Food Systems* 5 (2021), <https://www.frontiersin.org/article/10.3389/fsufs.2021.707835>.

⁷⁴¹ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

⁷⁴² Fadi Bashir Ahmad Said, “Political Marginalization of Youth as a Driver for Violent Extremism: Examining the Case of Jordan” (Master’s Thesis, Ankara, Hacettepe University Graduate School of Social Sciences, 2019), https://acikbilim.yok.gov.tr/bitstream/handle/20.500.12812/461319/yokAcikBilim_10242334.pdf?sequence

According to research by Steffensmeier and Haynie on within-sex comparisons of criminal offending rates, structural disadvantages such as adverse socioeconomic conditions increase criminal offending rates amongst both women and men, though the effect is stronger in men (Linkage 3.1.6.H).⁷⁴³ Several studies have shown an increase in lethal violence (more likely perpetrated by men; see section 1.2.3.1) and economic inequality, and though contested, research by Savolainen suggests the impact of socioeconomic inequality on lethal violence is especially strong in nations characterized by weak collective institutions and social protections (Linkage 3.1.6.I).⁷⁴⁴ Similarly, Coccia posits that within rich countries that serve as destinations for migrants, a precipitating factor for crime may be immigrants' experiences of exclusion from the formal economy.⁷⁴⁵ An intersectional lens is important for understanding drivers of crime related to socioeconomic marginalization. Heimer shows, for instance, that violent race-based victimization also appears to play a significant role in shaping criminal activity.⁷⁴⁶ Combined, these results suggest motivations related to a desire to *greater opportunities* (more likely women) and perhaps *exposure to violence/repression* or *pull of networks* (more typically men), though more research is required.

=-1; Karen Heimer, "Inequalities and Crime," *Criminology* 57, no. 3 (2019): 377–94, <https://doi.org/10.1111/1745-9125.12220>; Sarah Yerkes and Zeineb Ben Yahmed, "Tunisians' Revolutionary Goals Remain Unfulfilled," *Carnegie Endowment for International Peace* (blog), December 2018, <https://carnegieendowment.org/2018/12/06/tunisians-revolutionary-goals-remain-unfulfilled-pub-77894>.

⁷⁴³ Darrell Steffensmeier and Dana Haynie, "Gender, Structural Disadvantage, and Urban Crime: Do Macrosocial Variables Also Explain Female Offending Rates?," *Criminology* 38, no. 2 (2000): 403–38, <https://doi.org/10.1111/j.1745-9125.2000.tb00895.x>.

⁷⁴⁴ Jukka Savolainen, "Inequality, Welfare State, and Homicide: Further Support for the Institutional Anomie Theory," *Criminology* 38, no. 4 (2000): 1021–42, <https://doi.org/10.1111/j.1745-9125.2000.tb01413.x>; Sang-Weon Kim and William Alex Pridemore, "Poverty, Socioeconomic Change, Institutional Anomie, and Homicide," *Social Science Quarterly* 86, no. s1 (2005): 1377–98, <https://doi.org/10.1111/j.0038-4941.2005.00351.x>.

⁷⁴⁵ Bellitto and Coccia, "Possible Relations between Crime, Immigration and Socioeconomic Factors."

⁷⁴⁶ Heimer, "Inequalities and Crime."

Anti-state grievances and grievances between societal groups is the most likely pathway for climate-related socioeconomic inequalities to contribute to *National/International Security* risks. According to a World Bank report on the social dimensions of climate change, socioeconomic marginalization of groups can take many forms in conflict-related settings: environmental (living in low-potential areas); economic (poor market access and low share of public expenditures); sociocultural (ethnic prejudices); and political (any combination of the above).⁷⁴⁷ Such marginalization is even more profound for women and indigenous groups.⁷⁴⁸ As climate change intensifies, grievances felt by disadvantaged groups may erupt into violence and conflict, such as protests or disagreements over control of water, grazing land, or herds (Linkage 3.1.6.K).⁷⁴⁹ Extractive resources such as minerals, fossil fuels, and forestry resources which are considered critical revenue sources have been strongly connected to conflicts as different socioeconomic groups disagree over their control.⁷⁵⁰ For instance, in the Niger Delta, climate change exacerbates environmental degradation brought on by oil drilling which has deteriorated fishing and agricultural practices. Young men living in these regions have lately found they are unable to achieve the socioeconomic milestones associated with manhood, and as a result, are more likely to join militant groups to obtain

⁷⁴⁷ Robin Mearns and Andrew Norton, "Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World," *New Frontiers of Social Policy* (Washington, DC: The International Bank for Reconstruction and Development/The World Bank, 2010), 209, <https://openknowledge.worldbank.org/bitstream/handle/10986/2689/520970PUB0EPI11C010disclosed0De c091.pdf?sequence=1&isAllowed=y>.

⁷⁴⁸ "Women and Natural Resources: Unlocking the Peacebuilding Potential" (United Nations Environment Programme, 2013), 15.

⁷⁴⁹ Mearns and Norton, "Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World," 209, 219, 278.

⁷⁵⁰ "Women and Natural Resources," 23.

income and regain status, according to Ashamole (Linkage 3.1.6.L).⁷⁵¹ This research suggests that *pull of networks* (typically men) may be associated with violence that results (and also indicates a connection to the *SD-surplus males-unemployment Gender Equality-Security Mechanism*). Note that women have also been known to engage in violent protests due to socioeconomic grievances. For example, the Aba Women Riot of 1929 was led by women to oppose the excesses of the British colonial administration including the collection of (unfair) taxes.⁷⁵²

Furthermore, *grievances between societal groups* may become enmeshed with *interstate tensions* as well as *anti-state grievances* (Linkage 3.1.6.K).⁷⁵³ For instance, some research suggests that as climate change weakens state and customary authorities, existing or unresolved land access disputes between states may arise, especially if land claims seem invalid or unjust for particular groups.⁷⁵⁴ In such circumstances, motivations such as *increase survival* (both women and men), *pull of networks* (typically men), and *exposure to violence/repression* if government policies limit access to resources (typically men) may all play roles in climate- and *Socioeconomic Development*-related conflicts (though again, more studies should be conducted to explore the gendered nature of these potential motivational mechanisms).

To prevent social exclusion from developing into conflict, equitable development policies will need to be based on gender-transformative approaches that acknowledge

⁷⁵¹ Darlington C. Ashamole, "Extractive Industry and the Politics of Manhood in Nigeria's Niger Delta: A Masculinity Perspective of Gender Implication of Resource Extractivism," *NORMA* 14, no. 4 (October 14, 2019): 255–70, <https://doi.org/10.1080/18902138.2019.1663988>.

⁷⁵² Kelechi Johnmary Ani and Dominique Emmanuel Uwizeyimana, "Gender, Conflict and Peace-Building in Africa: A Comparative Historical Review of Zulu and Igbo Women in Crisis Management," *International Journal of Criminology and Sociology* 10 (December 31, 2021): 1726–31, <https://doi.org/10.6000/1929-4409.2021.10.195>.

⁷⁵³ Mearns and Norton, "Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World," 209, 219, 278.

⁷⁵⁴ "Women and Natural Resources," 16.

(and extend) property rights and empowerment of local people to fully participate in climate-related management decisions and dismantle unequal gendered institutions.⁷⁵⁵ Important for tempering all these potential *National/International Security* pathways are women's roles in peacemaking. A UN report on women and natural resource management suggests that the involvement of individual women's and men's networks in decision-making bodies may increase the likelihood of conflict mitigation between groups (acknowledging that women, too, can be perpetrators of violence).⁷⁵⁶ More specifically, as an oft socioeconomically marginalized group, a UN Environment Programme report notes that in a warming world, women's and men's networks are critical to peace processes related to natural resource management.⁷⁵⁷ One example is the case in the South Sudan where women have been key decision-makers in natural resource conflict management.⁷⁵⁸

⁷⁵⁵ Mearns and Norton, "Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World," 278.

⁷⁵⁶ "Women and Natural Resources," 33, 35.

⁷⁵⁷ "Women and Natural Resources."

⁷⁵⁸ "Women and Natural Resources," 33, 35.

3.1.6.3. Summary of Gender-Climate-Security and Socioeconomic Development

A summary visualizing Gender-Climate-Security connections to *Socioeconomic Development* can be found in Figure 20. A list of Diagnostic Questions in Table 60 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

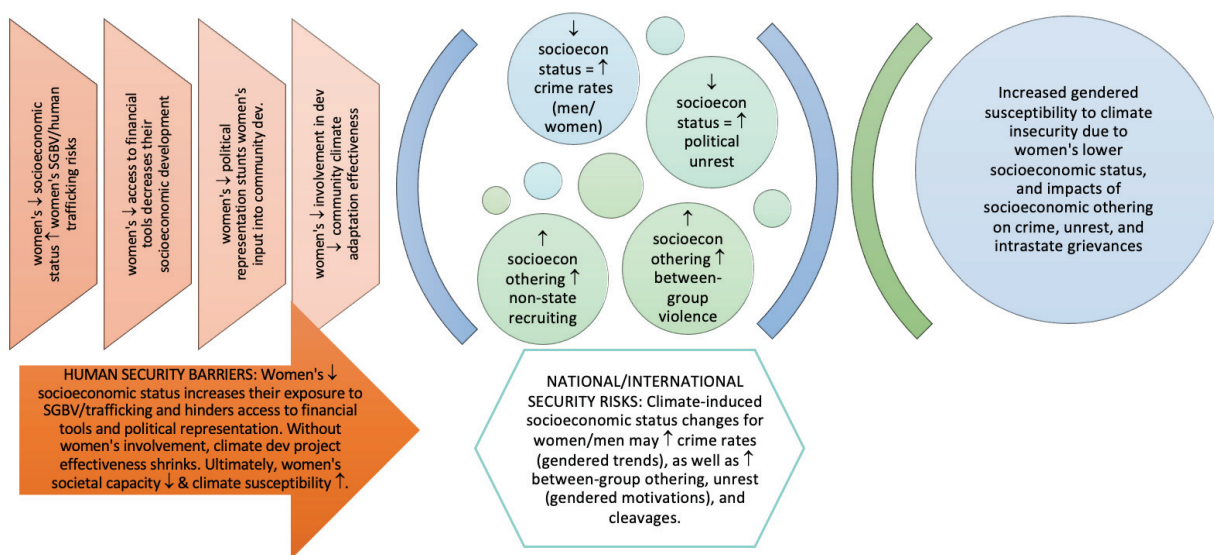


Figure 20. Gendered Climate Security Vulnerabilities in Socioeconomic Development.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Socioeconomic Development.

3.1.7. Infrastructure

Table 39. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Infrastructure.

<p>Dominant Approach: Quality of overall infrastructure at a country level, including energy, transport, and telephony.⁷⁵⁹</p>
<p>FPEcon/FPEcol Approach: The conventional understanding of infrastructure is limiting in terms of scope and fails to consider the gendered ways in which infrastructure is designed, built, and used. Many feminist theorists have examined how patriarchal values and gender norms connect to physical spaces such as transportation and telecommunications systems, energy infrastructure, and housing. For instance, according to bodily depletion theory, infrastructure that is not designed with the social reproduction responsibilities most often carried out by women is likely to add to their bodily depletion burdens.</p> <p>Infrastructure design also impacts how it feels to use it. Fernandes shows how cultural norms may suggest urban spaces are, “foreign, dangerous, and male,” thereby engendering a sense of fear about public spaces and discouraging women from utilizing them.⁷⁶⁰ Moreover, Wesely and Gaarder argue that in masculinized spaces, women often have to use coping mechanisms to deal with fear and vulnerability.⁷⁶¹ Nevertheless, Bondi suggests that, since women can challenge, rework, and reshape gendered meanings and experiences within a given space, they can be active participants (and not simply passive victims) in reimagining how infrastructure works and functions—if empowered to do so.⁷⁶²</p> <p>Furthermore, using social reproduction theory, urban political ecologists suggest that the notion of infrastructure should be extended beyond the physical elements of a system to include people’s activities (often women’s). Simone, for instance, argues that urban infrastructure is underpinned by a complex web of objects, spaces, persons, and practices that support the social reproduction of a broad range of spatial, economic, residential, and transactional positions.⁷⁶³ In other words, physical infrastructure cannot</p>

⁷⁵⁹ Remmits, Dick, and Rademaker, “Climate Security Assessment,” 95.

⁷⁶⁰ Leela Fernandes, “Beyond Public Spaces and Private Spheres: Gender, Family, and Working-Class Politics in India,” *Feminist Studies* 23, no. 3 (1997): 525–47, <http://dx.doi.org/10.2307/3178384>.

⁷⁶¹ Jennifer K. Wesely and Emily Gaarder, “The Gendered ‘Nature’ of the Urban Outdoors: Women Negotiating Fear of Violence,” *Gender and Society* 18, no. 5 (2004): 651.

⁷⁶² Liz Bondi, “Gender and the Reality of Cities: Embodied Identities, Social Relations and Performativities,” *Institute of Geography, The University of Edinburgh*, GEO-005, 2005, 6, <https://era.ed.ac.uk/handle/1842/822>.

⁷⁶³ A. M. (Abdou Maliqalim) Simone, “People as Infrastructure: Intersecting Fragments in Johannesburg,” *Public Culture* 16, no. 3 (2004): 407–29.

function without the social reproduction activities that fuel its purpose.

Beyond the ways in which spaces become gendered, in a climate susceptibility context, infrastructure is often not designed with the unique needs of women in mind. Building on Natile's critique of development projects that take a gender-blind approach, when infrastructure projects are launched without considering how to dismantle structural gender inequalities, such projects may only reinforce existing exclusions.⁷⁶⁴ As such, infrastructure projects must be designed to redistribute power to avoid feminizing responsibility for meeting climate challenges and to prevent adding to women's existing burdens.⁷⁶⁵

Finally, by defining infrastructure to include only energy, transportation, and telephony, traditional conceptions of infrastructure remain squarely in masculinized arenas. As such, this section will add the 'feminine' space of housing to the list of areas to explore. And while technology access has been examined in previous sections, here it will be studied in relation to infrastructure. Water and sanitation, arguably feminine spaces and heavily intertwined with infrastructure, have already been thoroughly explored in previous sections (the WASH section) and so will not be discussed here. The analysis that follows will focus on how the design of most *Infrastructure* components worldwide entrench gendered hierarchies in terms of how they are used and what burdens they place on different groups.

Brief comparison of dominant and feminist definitions of Infrastructure.

Table 40. Short Overview of the Infrastructure Gender-Climate-Security Linkages.

Human Security⁷⁶⁶	Gender Equality-Security Mechanisms
<p>Linkage 3.1.7.A. Energy insecurity at baseline increases women's UCDW burdens → climate change is expected to damage energy infrastructure → energy insecurity is likely to increase, especially for the poorest (often women) → women's drudgery will intensify, learning will become even more challenging, air pollution will intensify, injury and burn risks will mount, SGBV rates may increase, and health systems will become even less safe</p>	<p><i>Societal capacity</i></p>

⁷⁶⁴ Natile, *The Exclusionary Politics of Digital Financial Inclusion*, 25.

⁷⁶⁵ Natile, *The Exclusionary Politics of Digital Financial Inclusion*, 50.

⁷⁶⁶ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security⁷⁶⁶	Gender Equality-Security Mechanisms
<p>Linkage 3.1.7.B. Investments in transportation are made first to high-cost (high-carbon) systems like roadways for private vehicle owners (typically men) → when improvements are required (such as following a climate disaster), public transit, walkways, and bicycle lanes are generally not prioritized → women’s transportation routes become more complex and time consuming (and sometimes more expensive)</p>	<p><i>Societal capacity</i></p>
<p>Linkage 3.1.7.C. Transportation systems are designed around masculine work schedules → without private vehicles, women’s night-shift, service-based employment may require trip-chaining and slower transit routes → women have less time for work or UCDW</p>	<p><i>Societal capacity</i></p>
<p>Linkage 3.1.7.D. Women often must use public transit in the ‘urban nightscape’ which is perceived as perilous → women may prefer not to use public transit → may have to rely on slower modes of transit (walking, bicycling) → increases time required for work and/or UCDW</p>	<p><i>Societal capacity</i></p>
<p>Linkage 3.1.7.E. Patriarchal gender norms may render women invisible/unapproachable and public transit systems as forbidden or not permitted → some women may have no acceptable means of transportation at all → women’s climate adaptability and recovery are severely limited</p>	<p><i>Societal capacity</i></p>
<p>Linkage 3.1.7.F. Gender norms around technology ownership and use often limit women’s access to the internet and mobile phones → women often cannot take advantage of benefits offered by digital technology (such as time savings, increased safety, increased independence, banking access, business support, healthcare access, access to legal advice and support for SGBV survival, staying in touch with family and friends following disasters) → women’s ability to adapt and recover from climate shocks is hampered</p>	<p><i>Societal capacity</i></p>
<p>Linkage 3.1.7.G. Gender norms often confine women to their homes → gender norms may prevent women from owning/renting/insuring their homes → women cannot make decisions of how to prepare their homes for climate shocks → may increase women’s vulnerability to climate disasters</p>	<p><i>Societal capacity</i></p>

Human Security⁷⁶⁶		Gender Equality-Security Mechanisms
Linkage 3.1.7.H. New infrastructure projects (due to climate damage or to address climate change) may disrupt land use → women often inhabit lands (using it for livelihoods, food, water, shelter) needed for new infrastructure → infrastructure projects may not have equitable plans for how to address the needs of current residents		<i>Societal capacity</i>
Linkage 3.1.7.I. Climate disasters and climate change projects often require new infrastructure development → women are frequently not consulted in their design → women's climate adaptation needs may not be met		<i>Societal capacity</i>
Linkage 3.1.7.J. New infrastructure built in response to climate change often creates many new jobs → gender norms regarding education and job roles may bar women from being employed in infrastructure-building roles → women may not benefit from the economic opportunities offered → women's climate/economic stability may fall behind that of men's		<i>Societal capacity</i>
Linkage 3.1.7.K. New infrastructure projects may generate an influx of men seeking jobs → may reduce women's status → may create an increase in rates of SGBV		<i>Societal capacity//SD-urban surplus males-state-based conflict</i>
National/International Security⁷⁶⁷	Pathway	Motivational Mechanisms
Linkage 3.1.7.L. Climate disasters may prompt infusions of rebuilding funds into regions with damaged infrastructure → criminal/extremist actors may seize funds (with shell companies or by other means) to use for their own purposes or to garner support	Crime/violence/extremism	[Requires research] <i>Increase survival, avoid abuse (typically women),[∅] and pull of networks, exposure to violence/repression (typically men)[∅]</i>

⁷⁶⁷ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security⁷⁶⁷	Pathway	Motivational Mechanisms
Linkage 3.1.7.M. Climate disasters may cause loss of basic services due to infrastructure damage (such as energy, piped water) → criminal activity may increase as a result	Crime/violence/extremism	[Requires research] <i>Increase survival, avoid abuse (typically women),[∅] and pull of networks, exposure to violence/repression (typically men)[∅]</i>
Linkage 3.1.7.N. Poorly-developed road infrastructure may increase the likelihood of clashes between rebel groups and government forces → such tensions may intensify following a climate disaster that further damages roadways	Anti-state grievances	[Requires research] <i>Avoid abuse (typically women),[∅] pull of networks, and exposure to violence/repression (typically men)[∅]</i>
Linkage 3.1.7.O. Climate-damaged infrastructure will require repair → funds for repair may be allocated unequally along gender, racial, ethnic, class, or religious lines → may create or exacerbate anti-government or intrastate grievances	Anti-state grievances // Grievances between societal groups	[Requires research] <i>Fundamentalist ideology (both women and men), as well as avoid abuse (typically women),[∅] pull of networks, and exposure to violence/repression (typically men)[∅]</i>
Linkage 3.1.7.P. Climate change may trigger the need for infrastructure investments → infrastructure projects may result in job losses → unemployed men may migrate to urban centres to find work → may result in easier pathways to recruit men into rebel groups	Anti-state grievances // Grievances between societal groups	[Requires research] <i>SD-urban surplus males-unemployment[∅]</i>

National/International Security ⁷⁶⁷	Pathway	Motivational Mechanisms
Linkage 3.1.7.Q. Climate change is already prompting governments to engage in large-scale infrastructure projects to manage water needs → tensions over the governance of shared water resources between states can develop	Interstate tensions	[Requires research] <i>Increase survival (women),[∅] pull of networks, or pull of security (men)[∅]</i>

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with §; those with no research with ∅. For a full explanation of each Linkage, see sections 3.1.7.1 and 3.1.7.2.

3.1.7.1. Infrastructure and Human Security

Climate change is expected to take a significant toll on both urban and rural *Infrastructure*, causing damage that is likely to further reinforce gendered power imbalances, and will therefore play a role in whether communities are able to adapt to and recover from climate breakdown. Looking at *Infrastructure* and gender in this way, there are many links to the *societal capacity Gender Equality-Security Mechanism*, though the *SD-urban surplus males-unemployment mechanism* is also a consideration.⁷⁶⁸ The following discussion on GCS-Factor *Infrastructure* will therefore go beyond traditional conceptions of *Infrastructure* and climate change to consider various *Gender-Climate-Security Linkages* related to telecommunications, energy, transportation, and housing, noting how each either contributes to or detracts from gendered *Human Security* in a warming world. Furthermore, the discussion includes how efforts to build new or

⁷⁶⁸ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

refurbish climate-damaged *Infrastructure* could consider gender transformative approaches that offer greater climate adaptation possibilities for all.

A discussion of climate's impact on *Infrastructure* requires first a basic understanding of the gendering of *Infrastructure*. Certainly, poor *Infrastructure* impacts both women and men—especially in developing countries and rural areas where irregular power, poor roads, inadequate housing, and underdeveloped communication systems are prevalent. Yet, as Addati and Catta argue, there are many ways conventional *Infrastructure* either supports or adds to the burden of the care economy.⁷⁶⁹ Since *Infrastructure*'s design and function generally adds to the workloads of those responsible for social reproduction—usually women who provide family and household care and management—poor *Infrastructure* has an even more profound impact on women.⁷⁷⁰ Castells explains the gendering of *Infrastructure* and women's roles within urban *Infrastructure* spaces in this way:

The subordinate role of women ... enables the minimal maintenance of [the city's] housing, transport and public facilities... because women guarantee unpaid transportation (movement of people and merchandise), because they repair their homes, because they make meals when there are no canteens, because they spend more time shopping around, because they look after other's children when there are no nurseries and because they offer "free entertainment" to the producers when there is a social vacuum and an absence of cultural creativity... if women who "do nothing" ever stopped to do "only that", the whole urban structure as we know it would become completely incapable of maintaining its functions.⁷⁷¹

Likewise, Chopra and Zambelli note: “Lack of transportation technologies, water pumps, modern cooking fuels, electric appliances, and other tools that require energy access

⁷⁶⁹ Addati and Catta, “Care Work and Care Jobs for the Future of Decent Work,” 154.

⁷⁷⁰ Addati and Catta, “Care Work and Care Jobs for the Future of Decent Work,” 154.

⁷⁷¹ Manuel Castells, *City, Class, and Power* (New York: St. Martin's Press, 1978), 177–78.

mean that women in poor households have to exert much more of their own energy.”⁷⁷² In other words, most urban spaces do not contain *Infrastructure* that supports the care economy—instead most *Infrastructure* is built in the service of the market economy, or in other word, in support of masculinized work. Without care *Infrastructure*, women’s UCDW responsibilities generally increase along with long-term bodily depletion, requiring levels of exertion that may result in women experiencing higher levels of poor physical and mental health, and ultimately burnout.⁷⁷³ With this in mind, *Gender-Climate-Security Linkages* related to how gendered *Infrastructure* disadvantages women (generally), as well as how these disadvantages will be amplified due to climate change, must be explored.

First, it’s important to examine how energy-related *Infrastructure* supports gendered power structures and often fails to alleviate the UCDW burdens women commonly experience. According to Jessel et al., a household is considered energy insecure when it cannot meet its energy needs, a scenario that results from inadequate or faulty *Infrastructure*, service disruptions, or cost challenges.⁷⁷⁴ Gender is a social factor associated with energy insecurity, and gender disparities commonly result in negative health impacts. Women are frequently expected to make up energy shortfalls by using their own energy to trek to gather fuel or do the work that conventional energy might

⁷⁷² Deepta Chopra and Elena Zambelli, *No Time to Rest: Women’s Lived Experiences of Balancing Paid Work and Unpaid Care Work* (Institute of Development Studies, 2017), 12, <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/13574>.

⁷⁷³ Frédérique Hoffmann, Manfred Huber, and Ricardo Rodrigues, “Policies to Support Carers,” in *Social Indicators Research Series*, ed. Almudena Moreno Minguéz, vol. 49 (Dordrecht, Netherlands: Springer, 2012), 243–60, https://doi.org/10.1007/978-94-007-4354-0_12.

⁷⁷⁴ Sonal Jessel, Samantha Sawyer, and Diana Hernández, “Energy, Poverty, and Health in Climate Change: A Comprehensive Review of an Emerging Literature,” *Frontiers in Public Health* 7 (2019), <https://www.frontiersin.org/article/10.3389/fpubh.2019.00357>.

otherwise do.⁷⁷⁵ As Rewald explains, lack of adequate energy *Infrastructure* generates several additional burdens for women: increases women’s drudgery in cooking, processing food, and collecting fuel/water; makes *Education* and learning more challenging for girls; imposes significant health impacts on women’s bodies through air pollution, spinal injuries from heavy loads, and burn risks from fires; increases risks of SGBV when collecting fuel; and reduces efficiency of *Healthcare* services due to lack of electricity and light.⁷⁷⁶ Climate change is expected to increase wear-and-tear on energy systems, which will intensify energy insecurities, especially for the poorest groups.⁷⁷⁷ All the ways in which energy *Infrastructure* failed to take the care economy into consideration at baseline will be amplified, magnifying women’s UCDW burdens and bodily depletion as a result—drudgery will intensify, learning will become even more challenging, air pollution will intensify, injury and burn risks will mount, SGBV rates may increase, and health systems will become even less safe (Linkage 3.1.7.A). For example, as climate disruption intensifies and energy sources become scarcer, women caretakers (especially single mothers) may have to take on financial burdens to access more expensive energy or rely on dirtier fuel for cooking and heating, which may increase rates of respiratory illness.⁷⁷⁸

⁷⁷⁵ Institute for Women’s Policy Research, “Gender, Urbanization and Democratic Governance,” 17.

⁷⁷⁶ Rebecca Rewald, “Energy and Women and Girls: Analyzing the Needs, Uses, and Impacts of Energy on Women and Girls in the Developing World” (Oxfam, 2017), 13–15, <https://s3.amazonaws.com/oxfam-us/www/static/media/files/energy-women-girls.pdf>; That said, not all women experience gendered energy poverty. For example, in the Union of the Comoros where communities are built on matriarchal, matrilineal, and matrilocal values, homeowners are generally women, and therefore have more control over energy consumption choices. Interestingly, however, according to consultations by Castel, men and boys in this community often use their technical skills to make illegal connections to energy infrastructure, and 60% of those caught for such practices are women: Maria Beatriz Orlando et al., “Getting to Gender Equality in Energy Infrastructure: Lessons from Electricity Generation, Transmission, and Distribution Projects,” Technical Paper, Energy Sector Management Assistance Program (Washington, DC: World Bank, January 2018), 78, <https://doi.org/10.1596/29259>.

⁷⁷⁷ Jessel, Sawyer, and Hernández, “Energy, Poverty, and Health in Climate Change.”

⁷⁷⁸ Jessel, Sawyer, and Hernández, “Energy, Poverty, and Health in Climate Change.”

Second, there are many ways in which gendered power structures constrain the design of and impede women's use of shared transportation *Infrastructure* such as roads and mass transit. Crucially, Rivera finds that transport system policies are often biased toward high-cost systems such as roadways used by private vehicle owners (often men), and little attention is paid to bicycle and pedestrian systems (frequently women's mode of transportation) (Linkage 3.1.7.B).⁷⁷⁹ These challenges are compounded for the elderly and those with disabilities.

Additionally, transportation systems are frequently planned around men's labour needs, allowing for travel from rural and peri-urban regions to urban centres during peak hours. Kunieda and Gauthier note, however, that women often work during *off-peak* hours in *non-central* locations, requiring women to make multiple stops to achieve multi-purpose trips (a process called trip chaining).⁷⁸⁰ This results in commutes taking much more time for many women, constricting time available for work and UCDW (Linkage 3.1.7.C). Patel notes that, due to time and economic constraints, without access to private vehicles, and because of night-shift, service-based employment, women must often use public transit in the 'urban nightscape' which may be considered perilous.⁷⁸¹ Adding to feelings of lack of safety may be constant surveillance within public spaces like the transit system. Monahan argues that modern surveillance systems (such as video) put

⁷⁷⁹ Roselle Leah Rivera, "Gender and Transport Experiences of Marketplace Workers in Davao City, Philippines," *Environment and Urbanization Asia* 1, no. 2 (November 16, 2010): 171–86, <https://doi.org/10.1177/097542531000100205>; Deike Peters, "Gender and Sustainable Urban Mobility. Official Thematic Study for the 2013 UN Habitat Global Report on Human Settlements," Thematic Study, Global Report on Human Settlements 2013 (Nairobi: UN-HABITAT, 2011), 4, <http://rgdoi.net/10.13140/RG.2.1.4746.9287>.

⁷⁸⁰ Mika Kunieda and Aimée Guathier, "Module 7a: Gender and Urban Transport: Smart and Affordable," Sustainable Transport: A Sourcebook for Policy-Makers in Developing Cities (Germany: Federal Ministry for Economic Cooperation and Development, 2007), 21, <https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/7aGenderUTSept300.pdf>.

⁷⁸¹ Reena Patel, *Working the Night Shift: Women in India's Call Center Industry, Working the Night Shift* (Stanford University Press, 2010), <https://doi.org/10.1515/9780804775502>.

women under observation through the monitoring of feminine spaces (shopping, public transport), and unlike physical security personnel, video surveillance does not detect verbal sexual harassment, but may itself be a subtle form of harassment.⁷⁸² [One might argue, however, that if video surveillance is used to prosecute those who physically harass women, it may have an overall benefit.] When not designed with consideration of their needs, women may avoid certain *Infrastructure* spaces, such as using poorly-lit walkways or refusing to use public transit that lacks ramps or is poorly sanitized and maintained.⁷⁸³ When public transit systems are considered either unsafe or unsanitary, women may opt for other modes of transportation, such as walking or bicycling—options which often require even more time than public transit (Linkage 3.1.7.D). Importantly, in many conservative cultures, women are not even permitted to use public transit, leaving women very few options for movement. According to Chant, women are often rendered invisible or unapproachable and confined to separate transportation spaces due to, “symbolic dimensions surrounding the ‘forbidden’ and ‘permitted’ use of spaces governed by patriarchal power relations and norms of female propriety, which may require certain modes of dress, behaviour, and limitations on social interaction.”⁷⁸⁴ Lacking freedom to transit efficiently and safely to where they need to go, many women face often substantial obstacles to climate adaptation and recovery (Linkage 3.1.7.E).

According to McGuirk et al. and Ji et al., climate change is likely to cause significant damage to both public transit and roadways (their findings are summarized in

⁷⁸² Torin Monahan, “Dreams of Control at a Distance: Gender, Surveillance, and Social Control,” *Cultural Studies ↔ Critical Methodologies* 9, no. 2 (April 2009): 288, <https://doi.org/10.1177/1532708608321481>.

⁷⁸³ Kareem Buyana and Lwasa Shuaib, “Gender Responsiveness in Infrastructure Provision for African Cities: The Case of Kampala in Uganda,” *Journal of Geography and Regional Planning* 7, no. 1 (February 28, 2014): 1–9, <https://doi.org/10.5897/JGRP2013.0424>.

⁷⁸⁴ Sylvia Chant, “Cities through a ‘Gender Lens’: A Golden ‘Urban Age’ for Women in the Global South?,” *Environment and Urbanization* 25, no. 1 (2013): 9–29, <https://doi.org/10.1177/0956247813477809>.

Table 41; NB: these findings do not cover potential destruction of underground transportation systems, which will face different but also significant climate-related damage).⁷⁸⁵

Table 41. Climate Change Impacts for Surface Transportation.

Weather	Type of Climate Event	Impact
Extreme Precipitation	Freezing/liquid precipitation changes, extreme rain	Flooding (road closures, re-routing); roadway washout; softened railroad or roadway beds (reduced structural integrity due to soil moisture); roadbed/bridge scouring; landslides/mudslides; rock slides; blocked roadways/railroads
Extreme Heat	Air and surface temperature increases,	Rail buckling (sun kinks); asphalt cracking/aging/oxidation/softening; migration of liquid asphalt; catenary wire sag; failed expansion joints; reduced speeds on rails; concrete pavement blow-ups
Season Shift in Temperature	Changes in first occurrence of season, heat index changes	Increased freeze-thaw damage cycles; more landslides/mudslides
Sea Level Rise / Storm Surge / Coastal Flooding	Tropical hurricanes, open-water sea ice, high surf, storm surge, abnormal high/low tides, hurricane winds	Road/railway closures; more frequent/intense flooding in low-lying areas; obstructions/blocked rails/roadways; sea-level rise causing infrastructure damage; erosion of road base/bridge supports/bridge scouring; land subsidence

⁷⁸⁵ Marjorie McGuirk et al., “Weather and Climate Change Implications for Surface Transportation in the USA,” Bulletin (World Meteorological Organization, April 2009), <https://public.wmo.int/en/bulletin/weather-and-climate-change-implications-surface-transportation-usa>; Tao Ji et al., “The Impact of Climate Change on Urban Transportation Resilience to Compound Extreme Events,” *Sustainability* 14, no. 7 (March 25, 2022): 4, <https://doi.org/10.3390/su14073880>.

Weather	Type of Climate Event	Impact
Drought	Precipitation decreases; extreme dry seasons	Wildfire risk increases; road/railway closure (wildfire risk and visibility loss); increased flooding in deforested areas; increased debris in stormwater management system; loss of pavement integrity due to ground shrinking

Highlights of climate change impacts on transportation systems as suggested by McGuirk et al. and Ji et al., summarized by the author.⁷⁸⁶

The masculine designs and investments made to transportation systems create baseline challenges for many women looking to get to and from work and transporting between places for UCDW. Any additional transportation constraints caused by climate change, such as those described in Table 41, will only increase the time required and physical/economic burdens women face in engaging in paid and unpaid work and completing tasks.

Third, digital and mobile communications technologies are increasingly important for *Human Security*, as discussed in the *Early Warning* section of this study. Digital service access is crucial for women to save time, increase safety, gain independence, access banking services, run businesses, access health services, seek legal advice and support for SGBV survival, and stay in touch with family and friends, especially during crises such as climate breakdown.⁷⁸⁷ Critically, digital technologies are increasing in

⁷⁸⁶ McGuirk et al., “Weather and Climate Change Implications for Surface Transportation in the USA”; Ji et al., “The Impact of Climate Change on Urban Transportation Resilience to Compound Extreme Events,” 4.

⁷⁸⁷ Santosham and Lindsey, “Connected Women: Bridging the Gender Gap - Mobile Access and Usage in Low- and Middle-Income Countries,” 12; Peters, “Gender and Sustainable Urban Mobility. Official Thematic Study for the 2013 UN Habitat Global Report on Human Settlements”; “Mobile Phones and Women’s Empowerment in Maasai Communities: How Men Shape Women’s Social Relations and Access

importance within the political participation sphere; without adequate internet and mobile technology access, women's civic engagement may be extremely limited, according to Dersnah.⁷⁸⁸ However, as with other *Infrastructure* elements, lack of access to digital technologies may reinforce gender inequalities, which is evident in the fact that women continue to lag behind men in their use.⁷⁸⁹ As discussed, women have lower mobile phone ownership and use rates due to cost and network quality/coverage, as well as due to cultural norms that perpetuate gendered cyber harassment and prevent women from becoming competent and confident in their use.⁷⁹⁰ Additionally, as Gomez finds, public internet and telephone access points such as libraries, cybercafes, and telecentres may not be welcoming to women due to cost, lack of women attendants, and gender norms.⁷⁹¹ The fact that women are rarely consulted in the design of telecommunications *Infrastructure* systems likely further alienates them.⁷⁹²

A recent McKinsey report on the impacts of climate change on *Infrastructure* suggests that, though the telecommunications industry is younger and perhaps more nimble than other types of *Infrastructure*, it will nonetheless experience damage and destruction due to a changing climate.⁷⁹³

to Phones,” *Journal of Rural Studies* 77 (July 1, 2020): 126–37, <https://doi.org/10.1016/j.jrurstud.2020.04.013>.

⁷⁸⁸ Megan Alexandra Dersnah, “Women in Political and Public Life,” Background Paper, Global Report for the Working Group on the Issue of Discrimination against Women in Law and in Practice (Geneva, Switzerland: UN OHCHR, 2013), <https://essaydocs.org/women-in-political-and-public-life.html>.

⁷⁸⁹ Sigita Strumskyte, “Gender Equality and Sustainable Infrastructure” (OECD Council on SDGs, 2019), 4, <https://www.oecd.org/gov/gender-mainstreaming/gender-equality-and-sustainable-infrastructure-7-march-2019.pdf>.

⁷⁹⁰ Santosham and Lindsey, “Connected Women: Bridging the Gender Gap - Mobile Access and Usage in Low- and Middle-Income Countries,” 42; Gomez, “Gender and Public Access Computing”; “Gender and ICT.”

⁷⁹¹ Gomez, “Gender and Public Access Computing.”

⁷⁹² Mallalieu, “Women, ICT and Emergency Telecommunications: Opportunities and Constraints.”

⁷⁹³ Jonathan Woetzel et al., “Will Climate Change Cause Infrastructure to Bend or Break? | McKinsey” (McKinsey Global Institute, August 19, 2020), 22, <https://www.mckinsey.com/business-functions/sustainability/our-insights/will-infrastructure-bend-or-break-under-climate-stress>.

The risks climate change presents for telecom are primarily acute. High winds or trees can fell cell phone towers and telephone poles, blow down telephone lines and base stations, and knock microwave receivers out of alignment. Above-ground cabling is at more risk than buried lines of support and pole failures, damage from debris and falling objects (such as trees), and breakage from tension caused by extreme wind speeds. Flooding and hurricanes are the biggest threats... These threats interfere with the system just when it is needed most for disaster recovery. Communication blackouts can hamper disaster relief and the management of infrastructure repair efforts. Even systems that survive hazards can become congested and fail... Chronic impacts also exist, but this risk is typically lower. Higher heat can increase data centers' cooling costs, which make up 40 percent of their total energy consumed. Rain can affect mobile signals ("rain shading"), but this is predominantly a problem above 10 gigahertz and so is rare.

As noted, the normative social structures that shape telecommunications and technology access and reinforce gender inequalities at baseline in numerous spheres of society are likely to be amplified due to these climate impacts, rendering women less equipped to adapt to and recover from climate crises (Linkage 3.1.7.F). On the other hand, having women's input in the design of new technologies could significantly increase women's digital use and climate adaptation, especially related to access to information and cash, engagement, learning, and participation, as well as perceptions of gender norms.⁷⁹⁴

Finally, while housing is of concern for both women and men, because of gendered norms around the care economy, women and girls tend to be responsible for maintaining and sustaining the home: cooking, cleaning, washing, looking after family members, and tending kitchen gardens, making the quality of housing crucial for women's *Human Security*. Women frequently lack land and property ownership rights, which creates housing insecurity, especially for women-headed households and for

⁷⁹⁴ Mallalieu, "Women, ICT and Emergency Telecommunications: Opportunities and Constraints."

women who identify as LBGTQI+.⁷⁹⁵ Urban centres, however, may give women greater freedom to own property, though frequently even when women's rights are greater in cities, property is registered in the names of men.⁷⁹⁶ Women are also often barred from renting property due to issues of propriety; lack of employment and earnings, credit, and finance; and high costs.⁷⁹⁷ Furthermore, even though women often face barriers to home ownership and home rental, the household is typically the location of UCDW as well as income generation for women, and may be an important aspect of a meaningful pathway out of *Poverty*, according to Moser.⁷⁹⁸

Crucially, gendered norms often dictate that the home is a woman's domain, nevertheless patriarchal norms often result in a woman's father, grandfather, husband/partner, or son dictating the nature of a woman's relationship to her home.⁷⁹⁹ She may have little choice as to how to build, rebuild, or prepare the house due to climate impacts (Linkage 3.1.7.G). Yet according to Satterthwaite, some of the most serious climate risks within cities arise from poor quality housing.⁸⁰⁰ Poor housing is often built precariously on sites vulnerable to wildfires, (pluvial or riverine) flooding, sea level rise and storm surges, and landslides, with little to no protective *Infrastructure*, water

⁷⁹⁵ Sylvia Chant, "Gender, Cities, and the Millennium Development Goals in the Global South," *LSE Gender Institute*, New Series Working Paper, no. 21 (November 2007): 1–79.

⁷⁹⁶ Oyebanji Oyelaran-Oyeyinka and Lucia Kiwala, "State of Women in Cities 2012-2013: Gender and the Prosperity of Cities" (Kenya: UN-HABITAT, 2013), 44, <https://unhabitat.org/sites/default/files/download-manager-files/Gender%20and%20Prosperity%20of%20Cities.pdf>.

⁷⁹⁷ Oyelaran-Oyeyinka and Kiwala, "State of Women in Cities 2012-2013: Gender and the Prosperity of Cities," 44.

⁷⁹⁸ Caroline Moser, "Asset-Based Approaches to Poverty Reduction in a Globalized Context: An Introduction to Asset Accumulation Policy and Summary of Workshop Findings," Working Paper (Rochester, NY: Global Economy and Development, Social Science Research Network, November 2006), <https://doi.org/10.2139/ssrn.1011176>.

⁷⁹⁹ Prabha Khosla, "Women and Housing: Towards Inclusive Cities" (Kenya: UN-HABITAT, 2014), 3, <https://unhabitat.org/sites/default/files/download-manager-files/Women%20and%20Housing%20Book.pdf>.

⁸⁰⁰ David Satterthwaite, "How Urban Societies Can Adapt to Resource Shortage and Climate Change," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 369, no. 1942 (May 13, 2011): 1762–83, <https://doi.org/10.1098/rsta.2010.0350>.

Infrastructure, or shelter from extreme temperatures.⁸⁰¹ As such, climate change is likely to severely damage or completely destroy the housing of millions around the globe, a fact that will increase the perilousness of the lives of most vulnerable to climate disasters.

When damaged by climate change, strained energy, transportation, telecommunications, and housing *Infrastructure* may intensify structural gender inequalities and diminish women's *societal capacity* to adapt to a warming world, especially when care-related *Infrastructure* is lacking. As mentioned, both slow-onset climate change and acute climate-related disasters, including everything from heatwaves to floods to forest fires, will severely damage roads, telecommunications systems, public transit systems, housing, energy systems (including renewable systems), public buildings, concrete structures, and more.⁸⁰² Importantly, by disrupting basic services in the economy, such as power and water supplies, sanitation, and transportation, climate change can strip communities of their livelihoods and assets, and disrupt their social fabric, exacerbating *Poverty*, and reinforcing inequalities.⁸⁰³ Additionally, public *Infrastructure* will come under increasing strain as more people migrate from rural to urban centres, yet according to Roy, current urban *Infrastructure* in most settings is

⁸⁰¹ Satterthwaite, "How Urban Societies Can Adapt to Resource Shortage and Climate Change."

⁸⁰² Mark G. Stewart, Xiaoming Wang, and Minh N. Nguyen, "Climate Change Impact and Risks of Concrete Infrastructure Deterioration," *Engineering Structures* 33, no. 4 (April 2011): 1326–37, <https://doi.org/10.1016/j.engstruct.2011.01.010>; Jagriti Kher, Savita Aggarwal, and Geeta Punhani, "Water Woes of Women: Obstacles to Gender Equity under Changing Climate," *Indian Journal of Extension Education* 54 (2018): 89–99; Amy Schweikert et al., "Climate Change and Infrastructure Impacts: Comparing the Impact on Roads in Ten Countries through 2100," *Procedia Engineering* 78 (2014): 306–16, <https://doi.org/10.1016/j.proeng.2014.07.072>; Shouraseni Sen Roy, *Linking Gender to Climate Change Impacts in the Global South*, Springer Climate (Cham: Springer International Publishing, 2018), <https://doi.org/10.1007/978-3-319-75777-3>.

⁸⁰³ Katharine J. Mach et al., "Climate as a Risk Factor for Armed Conflict," *Nature* 571, no. 7764 (July 2019): 193–97, <https://doi.org/10.1038/s41586-019-1300-6>.

considered inadequate for the influx of climate migrants that are expected to move into cities in the coming decades.⁸⁰⁴

New *Infrastructure* projects (transportation, telecommunications, energy, or housing) developed due to increased demand from climate migrants or due to climate-related damage done to systems may offer tremendous opportunities to benefit a community's most vulnerable, however if not zoned and constructed with equity in mind, new systems may also reinforce existing inequalities. For instance, in many cases, new *Infrastructure* is incompatible with previous commercial, industrial, or residential uses of land and resources, which requires thinking about how to equitably address the needs of current and future residents of the land.⁸⁰⁵ In the case of energy *Infrastructure* projects, *Infrastructure* development is often accompanied by natural ecosystem disruptions, such as deforestation, river dams, farmland clearing, and increased water consumption, according to ENERGIA (an organization focused on gender and sustainable energy).⁸⁰⁶ These land use changes may have disproportionate impacts on women who rely on the environment for their livelihoods, food, water, and shelter (Linkage 3.1.7.H).

Furthermore, as a World Bank report on women in *Infrastructure* works notes, women are more likely than not to be excluded from the design and implementation of

⁸⁰⁴ Sen Roy, *Linking Gender to Climate Change Impacts in the Global South*, 7.

⁸⁰⁵ James H Williams, "International Best Practices for Assessing and Reducing the Environmental Impacts of High-Voltage Transmission Lines" (Third Workshop on Power Grid Interconnection in Northeast Asia, Vladivostok, Russia, 2003), 2, https://www.nautilus.org/wp-content/uploads/2011/12/Env_Best_Practices_Williams_final.pdf.

⁸⁰⁶ Joy Clancy, "Mainstreaming Gender in the Energy Sector Training Manual," A Training Manual (Ministry of Energy Mozambique, Embassy of Norway in Mozambique, Norad and ENERGIA International Network on Gender and Sustainable Energy, August 2012), 55, <https://www.energia.org/assets/2016/09/Mozambique-Manual-Mainstreaming-Gender-in-the-Energy-Sector-Training-Manual-final.pdf>.

Infrastructure projects (Linkage 3.1.7.I).⁸⁰⁷ Relevant gender issues in new *Infrastructure* projects include health, livelihood, and displacement concerns, as well as consideration of Kabeer’s horizontal inequalities (gender, caste, and race) and vertical inequalities (income/wealth hierarchies).⁸⁰⁸ Women, who are often responsible for subsistence farming, gathering food, collecting water and fuel, laundering clothes, and cooking meals experience greater disruptions due to land use changes because of the increased time and effort required to carry out these tasks.⁸⁰⁹ Furthermore, when water sources are polluted because of *Infrastructure* projects (by energy production, for instance), those using water for domestic purposes (primarily women) may experience higher rates of illness.⁸¹⁰

When *Infrastructure* projects require the displacement of people, this also has gender implications. Since most land titles are registered in the name of male family members, women are often disproportionately impacted by land use changes, such as those for new *Infrastructure*.⁸¹¹ For instance, in countries where informal (rather than formal) land tenure and use of common property for kitchen gardens is the norm, marginalized groups (the poor, women, indigenous people, and migrants) are considered ‘squatters’ and evicted, often without notice, to make way for new projects.⁸¹² Consultation with women is therefore important for bolstering their climate security, however this may prove challenging since, in many cases, a certain level of literacy and *Education* may be required to participate in community decisions about *Infrastructure*-

⁸⁰⁷ Maria Teresa Gutierrez, “Women in Infrastructure Works: Boosting Gender Equality and Rural Development,” Policy Brief, Gender and Rural Employment Policy Brief (ILO, 2010), <https://www.fao.org/3/i2008e/i2008e05.pdf>.

⁸⁰⁸ Kabeer, “Gender, Poverty, and Inequality,” 190.

⁸⁰⁹ Orlando et al., “Getting to Gender Equality in Energy Infrastructure,” 39.

⁸¹⁰ Clancy, “Mainstreaming Gender in the Energy Sector Training Manual.”

⁸¹¹ Christiane Gerstter et al., “An Assessment of the Effects on Land Ownership and Land Grab on Development” (European Parliamentary Research Service, March 31, 2011), 10, <https://www.ecologic.eu/11973>.

⁸¹² Orlando et al., “Getting to Gender Equality in Energy Infrastructure,” 45.

related land use changes and project environmental monitoring. According to Clancy, in communities where gender norms prevent women from accessing *Education*, women are often less involved in *Infrastructure* negotiations and consultations.⁸¹³

Finally, as public *Infrastructure* systems are rebuilt following climate deterioration, gender must be considered in employment as well since women are frequently excluded from job growth in *Infrastructure* development (Linkage 3.1.7.J).⁸¹⁴ Men often benefit from new job creation as new *Infrastructure* is built; however new *Infrastructure* projects may also generate an influx of men into communities.⁸¹⁵ Clancy argues that when *Infrastructure* projects increase the number of men in communities, it can lead to gender imbalances and an increase in marginalization of women, particularly in relation to decisions made about development efforts.⁸¹⁶ These shifts in gender norms and reduction of women's status has been shown to increase rates of SGBV (Linkage 3.1.7.K) (which may suggest the *surplus males-state-based conflict* mechanism is also at work).⁸¹⁷

A habitable and inclusive city, according to FPEcol scholar Agostino, is one that includes, “rights to adequate housing, water and sanitation, energy, information and communication, mobility, public spaces and services, ... and infrastructure for all.”⁸¹⁸ The above discussion on GCS-Factor *Infrastructure* expanded conceptions of the impacts of

⁸¹³ Clancy, “Mainstreaming Gender in the Energy Sector Training Manual,” 56,57.

⁸¹⁴ Gutierrez, “Women in Infrastructure Works: Boosting Gender Equality and Rural Development”; I Sundar, “Gender Inequality in Climate Change Impacts and Gender Sensitive Climate Change Mitigation and Adaptation,” *Mahila Pratishtha* 4, no. 1 (July 2018), https://www.researchgate.net/profile/Niladri-Pradhan/publication/351599476_Journal_of_Mahila_Pratishttha/links/609f65f0458515c265908f8d/Journal-of-Mahila-Pratishtha.pdf#page=183.

⁸¹⁵ Orlando et al., “Getting to Gender Equality in Energy Infrastructure,” 55.

⁸¹⁶ Clancy, “Mainstreaming Gender in the Energy Sector Training Manual,” 56.

⁸¹⁷ Orlando et al., “Getting to Gender Equality in Energy Infrastructure,” 55.

⁸¹⁸ Ana Agostino, “Towards an Urban Agenda from a Feminist Political Ecology and Care Perspective,” in *Feminist Political Ecology and the Economics of Care: In Search of Economic Alternatives*, ed. Christine Bauhardt and Wendy Harcourt, 1st ed. (New York: Routledge, 2018), 277, <https://doi.org/10.4324/9781315648743>.

climate-damaged *Infrastructure* to include how destruction of telecommunications, energy, transportation, and housing *Infrastructure* is likely to entrench gendered power imbalances. Putting this in the context of Forsberg and Olsson’s research, it is likely that climate-impacted *Infrastructure* will limit women’s empowerment and lower their resources and networks, thereby diminishing their societal capacity and capability of contributing to community strength.

While poor *Infrastructure* and lack of care *Infrastructure* increases climate *Susceptibility* and lowers *Human Security*, MacGregor et al. suggest that one of the most gender-transformative ways to redistribute care work is in part through the development of better-designed *Infrastructure*:

Physical infrastructure and labor-saving technologies that are compatible with the needs and practices of users and that facilitate daily care work ... can make a positive difference and are essential for meeting the challenges presented by climate change impacts when they succeed at reducing the time demands and drudgery of care work.⁸¹⁹

For instance, in a meta-study of the effects of electrification, improved access to electricity was shown to increase educational enrolment by 7% (with a greater median impact for girls), increase women’s labour market participation by 15%, and increase household incomes by 30%.⁸²⁰ Indeed, Addati and Catta recommend that care-related *Infrastructure* be universally accessible (rural or urban, regardless of class, race, or gender), affordable, and designed in consultation with local people to meet their needs.⁸²¹

Feminist scholar Listo argues that there are three problematic myths in the energy-gender

⁸¹⁹ Sherilyn MacGregor, Seema Arora-Jonsson, and Maeve Cohen, “Caring in a Changing Climate: Centering Care Work in Climate Action,” Research Backgrounders (Oxfam, 2022), 3, <https://reliefweb.int/sites/reliefweb.int/files/resources/rr-caring-in-a-changing-climate-230222-en.pdf>.

⁸²⁰ Raul Jimenez, “Development Effects of Rural Electrification,” Policy Brief (Inter-American Development Bank, January 2017), 3,8,9, <https://publications.iadb.org/publications/english/document/Development-Effects-of-Rural-Electrification.pdf>.

⁸²¹ Addati and Catta, “Care Work and Care Jobs for the Future of Decent Work,” 155.

nexus literature which are helpful in properly situating gender in the *Infrastructure-climate security* nexus: (1) energy poor women are vulnerable, helpless, virtuous, and hardworking; (2) energy poverty can be solved through technical solutions (stoves, lights), thereby empowering women; and (3) gender inequality is a result of energy poverty and can be solved through energy interventions.⁸²² These arguments, suggests Listo, co-opt feminist principles and instrumentalize them to support development agendas rather than addressing the underlying power imbalances between the genders.⁸²³ A more beneficial approach to gender transformative *Infrastructure* development may be the gender and development (GAD) discourse, which emphasizes power structures, focusing on the problem of male privilege and how to transform dominant power structures.⁸²⁴ *Infrastructure* design and implementation could therefore be used to transform structural inequalities, thereby contributing to the project of gender equality and climate security.

3.1.7.2. Infrastructure and National/International Security

A United States Agency for International Development (USAID) report on climate change and conflict notes:

The contextual changes impacting agriculture, water, health, and infrastructure will create new ‘winners’ and ‘losers.’ These could either (1) exacerbate existing social tensions related to the environment and natural resources, or (2) create new tensions.⁸²⁵

⁸²² Romy Listo, “Gender Myths in Energy Poverty Literature: A Critical Discourse Analysis,” *Energy Research & Social Science* 38 (April 2018): 9–18, <https://doi.org/10.1016/j.erss.2018.01.010>.

⁸²³ Listo, “Gender Myths in Energy Poverty Literature,” 12.

⁸²⁴ Johnsson-Latham, “Power, Privilege and Gender,” 43.

⁸²⁵ Kirby Reiling and Cynthia Brady, “Climate Change and Conflict: An Annex to the USAID Climate-Resilient Development Framework,” Technical Report (Washington, DC: USAID, February 2015), 16, https://www.usaid.gov/sites/default/files/documents/1866/ClimateChangeConflictAnnex_2015%2002%205%2C%20Final%20with%20date%20for%20Web.pdf.

Looking at the range of pathways along which *National/International Security* risks may develop due to climate-impacted *Infrastructure*, it is possible to see potential collisions in all four, as well as the *SD-urban surplus males-unemployment Gender Equality-Security Mechanism*.⁸²⁶

There are several routes by which climate-ravaged *Infrastructure* may contribute to the *crime/violence/extremism* pathway. For instance, public funds may be captured by malign actors and used for their own purposes or redistributed to partners to garner support (Linkage 3.1.7.L). For example, in a report by La Tribuna it was shown that Honduran drug traffickers used shell companies established to carry out state-paid *Infrastructure* repair projects to launder their illicit drug funds.⁸²⁷ Similarly, a report on Latin America and the Caribbean by the Climate Security Expert Network and adelphi notes that in urban settings with dense populations, loss of basic services such as energy can increase the likelihood of criminality following a climate shock (Linkage 3.1.7.M).⁸²⁸ In section 1.2.3.1, the well-documented gender gap in violent crime rates was discussed, though women's criminal activity rates have been on the rise, especially related to

⁸²⁶ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4). The *Gender-Climate-Security Linkages* may also be categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

⁸²⁷ N'Dea Akei Yancey-Bragg, "Honduran Gang Used Tropical Storm Agatha to Launder Millions of Drug Money," *Organized Crime and Corruption Reporting Project* (blog), March 20, 2017, <https://www.occrp.org/en/daily/6268-honduran-gang-used-tropical-storm-agatha-to-launder-millions-of-drug-money>.

⁸²⁸ Adriana E Abdenur and Lukas Rüttinger, "Risk Brief: Latin America & The Caribbean," Brief (Berlin, Germany: Climate Security Expert Network & adelphi, May 2020), 17, https://climate-security-expert-network.org/sites/climate-security-expert-network.com/files/documents/climate_fragility_risk_brief_latin_america_and_the_caribbean.pdf.

property crimes. However, no research tracks gendered trends in property and violent crimes related to *Infrastructure* and climate shocks. Furthermore, should *grievances between societal groups* related to unfair allocation of public *Infrastructure* resources take the form of organized crime, men may play outsized roles in leadership and violence according to a wide literature that also shows women are typically sidelined to auxiliary roles in gangs and organized crime.⁸²⁹ Given who and how climate-impacted *Infrastructure* breakdown is likely to impact, it may be useful to study whether motivations of *increase survival* or *avoid abuse* may drive women to engage in more criminality, or whether men may be motivated by *pull of networks* or *exposure to violence/repression* (research is lacking).

There are several ways in which risks of both *anti-state grievance* and *grievances between societal groups* may increase when allocation of climate-related mitigation and adaptation resources for *Infrastructure* projects creates or exacerbates inequalities.⁸³⁰ Research in Sub-Saharan Africa by Detges finds that civil conflict between rebel groups and governments is more likely in regions with poorly developed road *Infrastructure* (Linkage 3.1.7.N).⁸³¹ Moreover, Raleigh posits that political violence may result when the development of *Infrastructure*, such as roads or sanitation systems, is subject to a high degree of ethnic favouritism, especially in non-democratic systems: “the risk of adverse consequences due to climate change is related to the pre-existing political, economic and

⁸²⁹ Hübschle, “Of Bogus Hunters, Queenpins and Mules”; Klemans, Kruisbergen, and Kouwenberg, “Women, Brokerage and Transnational Organized Crime. Empirical Results from the Dutch Organized Crime Monitor”; Joe and Chesney-Lind, “‘Just Every Mother’s Angel’ An Analysis of Gender and Ethnic Variations in Youth Gang Membership”; Shen, “Female Membership in the Black-Society Style Criminal Organizations”; Miller, *One of the Guys*; Esbensen, *Youth Violence*.

⁸³⁰ Reiling and Brady, “Climate Change and Conflict,” 25.

⁸³¹ Detges, “Local Conditions of Drought-Related Violence in Sub-Saharan Africa.”

physical vulnerability of communities” (Linkage 3.1.7.O).⁸³² Though no research on motivations exists, research may be useful for understanding if cases of weak government performance on *Infrastructure*, could trigger *avoid abuse* (for women) and *pull of networks* and *exposure to violence/repression* (for men) as motivations for joining anti-state or non-state groups. Another hypothesis is whether *fundamentalist ideology* motivations may increase the likelihood that women and men will respond with violence to government favouritism. However, research could also be conducted on how a gender-relational approach to mitigation and recovery from such damage can prevent conflict and violence.⁸³³

Additional studies are available on the *anti-state grievances* pathway, however, especially related to the economics of *Infrastructure* projects. The World Bank has noted that when new *Infrastructure* projects result in both new jobs for some people as well as livelihood losses or cultural changes for others, those who lose may feel political unrest and violence are the only ways to express their dissatisfaction.⁸³⁴ Similarly, a study by Mehta suggests that when land use changes result in the loss of income, men are often forced to migrate to urban centres to look for new sources of income (notably, this type of demographic change can thrust women into household-head roles which may offer both benefits and additional burdens, as will be discussed in greater depth in the *State Fragility* section of this study).⁸³⁵ These shifts in men’s employment may generate a

⁸³² Clionadh Raleigh, “Political Marginalization, Climate Change, and Conflict in African Sahel States,” *International Studies Review* 12, no. 1 (March 2010): 69, <https://doi.org/10.1111/j.1468-2486.2009.00913.x>.

⁸³³ Judy El-Bushra, “Gender in Peacebuilding: Taking Stock,” June 30, 2012, 19, <https://www.international-alert.org/publications/gender-peacebuilding-taking-stock/>.

⁸³⁴ Orlando et al., “Getting to Gender Equality in Energy Infrastructure,” 63.

⁸³⁵ L. Mehta, “No Plot of One’s Own - How Large Dams Reinforce Gender Inequalities,” *World Rivers Review* 26, no. 1 (2011),

surplus of unemployed males in urban centres, which could create opportunities for armed group recruitment in state-based conflicts—this suggests the *SD-urban surplus males-unemployment Gender Equality-Security Mechanism* may be at work (Linkage 3.1.7.P), though research is needed on possible gendered trends in protests to align with findings outlined in section 1.2.3.3. Nevertheless, some development organizations have designed *Infrastructure* investment as compensation schemes; if designed with gender in mind, climate-related *Infrastructure* projects could benefit both women and men and prevent out-migration.⁸³⁶

Finally, once *Infrastructure* development is complete, tensions may increase after cash incentives are gone, in particular where capacity building measures have concluded and where there is the presence of former militants looking for ways to avoid re-engaging with armed groups.⁸³⁷ Studying whether recruitment into rebel groups may be easier using motivations like *pull of networks* (primarily men) would be useful. What’s more, as previously noted in section 1.2.3.3, gender is a mediating factor that may increase the likelihood of violence caused by grievances about climate-induced damage to *Infrastructure* because of the greater likelihood that men engage in violent civic action relative to women.⁸³⁸

There is a burgeoning literature on *interstate tensions* related to climate-caused *Infrastructure* damage or development. For instance, Akter has studied the intersection of hydro-politics, ecological integrity, and interstate governance required to manage hydro-

<https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/3876/No%20Plot%20of%20One's%20Own%20-%20L.%20Mehta.pdf?sequence=3&isAllowed=y>.

⁸³⁶ Orlando et al., “Getting to Gender Equality in Energy Infrastructure,” 44.

⁸³⁷ “Infrastructure for Peacebuilding” (UNOPS, September 2020), 32, <https://www.unops.org/news-and-stories/insights/conflict-climate-change-and-infrastructure>.

⁸³⁸ Sikweyiya and Nkosi, “Violent Protests and Gendered Identities”; Rucht, “The Spread of Protest Politics.”

energy *Infrastructure* in ways that avoid conflict over the Ganges–Brahmaputra Meghna.⁸³⁹ Should such conflicts erupt, the *increase survival* motivation (women) and perhaps *pull of networks* or *personal security* (men) may be the most prominent, though research on this topic is required. Gökçe et al. explore how energy *interdependence* (such as through trade relations which require *Infrastructure* development) between states may have a pacifying effect between states that might otherwise be in conflict.⁸⁴⁰ Similarly, the USAID report on climate and conflict (previously mentioned) suggests that climate adaptation initiatives related to *Infrastructure* can be opportunities for promoting peace and dispute resolution, and that,

there are many more examples of cooperation over shared water resources than there are instances of violent conflict. ... At the local level, specific projects – from flood protection infrastructure to early warning systems – can bring adversaries together through collaborative, transparent, and participatory implementation processes.⁸⁴¹

No studies as yet, however, explore what role gender might play in conflict or peacebuilding between nations looking to develop *Infrastructure* projects on shared resources.

⁸³⁹ Marufa Akter, “Conceptualizing Environmental Governance on the GBM Basin,” *Bandung: Journal of the Global South* 3, no. 1 (June 30, 2016): 1–17, <https://doi.org/10.1186/s40728-015-0025-7>.

⁸⁴⁰ Osman Zeki Gökçe, Emre Hatipoglu, and Mehmet Ali Soytas, “The Pacifying Effect of Energy Dependence on Interstate Conflict: A Large-N Analysis,” *Energy Research & Social Science* 78 (August 2021), <https://doi.org/10.1016/j.erss.2021.102133>.

⁸⁴¹ Reiling and Brady, “Climate Change and Conflict,” 17.

3.1.1.7.3. Summary of Gender-Climate-Security and Infrastructure

A summary visualizing Gender-Climate-Security connections to *Infrastructure* can be found in Figure 21. A list of Diagnostic Questions in Table 61 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

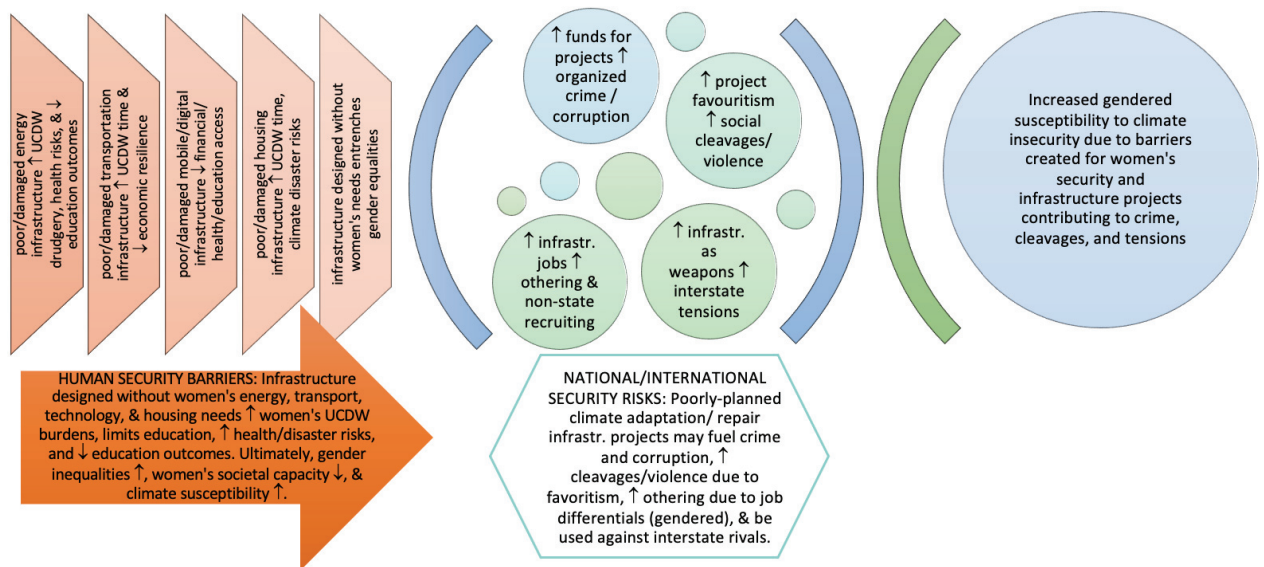


Figure 21. Gendered Climate Security Vulnerabilities in Infrastructure.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Infrastructure.

3.2. Institutional (In)stability

In the HCSS Climate Security framework, institutional conditions consider the regulatory norms, instruments, and bodies that govern society, and in particular the ways in which policy is set and implemented related to sustainable development, DRR strategies, and climate adaptation.⁸⁴² The effective policy integration at all levels of the government is a necessary component to managing climate-related prevention and adaptation, as well as disaster relief and recovery, without adding to or creating new tensions: “Government legitimacy, accountability, and transparency are important drivers of the receptivity and success of government policies. Moreover, they reduce the risk of political fragmentation and tensions.”⁸⁴³ Those governments that are unable to meet the challenges of climate change are more likely to see public support and legitimacy erode, which will increase the likelihood of suffering, losses, severe damage, and other adverse effects. Two GCS-Factors are covered by GCS-Phase *Institutional (In)stability*: *Corruption and State Fragility*.

⁸⁴² Remmits, Dick, and Rademaker, “Climate Security Assessment,” 96.

⁸⁴³ Remmits, Dick, and Rademaker, “Climate Security Assessment,” 96.

3.2.1. Corruption

Table 42. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor Corruption.

<p>Dominant Approach: Measured by Transparency International’s Corruption Perception Index (CPI), which examines corruption of a country according to experts and businesspeople.⁸⁴⁴</p>
<p>FPEcon/FPEcol Approach: A corruption factor that takes opinions only from elite experts and businesspeople will lack a full view of a system since structural barriers prevent many, especially women, from accessing such spaces. Alternatively, there are two ways to examine gender in terms of corruption and climate change. The first is from the bottom-up, with an analysis of how corruption impacts public service delivery to the poorest in many systems (often made up primarily of women). From this perspective, individual women and women-headed households may be more profoundly impacted by higher levels of corruption in a warming world.</p> <p>The second gender lens is more top-down since it addresses the role women can play in reducing rates of corruption through government leadership. The presence of women in spaces of power has been shown to have an ameliorating effect on corruption. While there is a rich literature justifying the belief that women are less likely to be corrupt or corruptible based on the theory that women are more nurturing, or that women’s caretaking roles make them averse to corruption, this essentialist view has been challenged by feminists.⁸⁴⁵ Instead, two feminist arguments suggest that rather than women being inherently less corrupt/corruptible, patriarchal structures are likely at work.</p> <p>The first theory by feminist political scientists Johnson et al. suggests that gendered ideology is often used to justify corruption, leading to gendered institutionalized corruption that paves the way for continued male dominance.⁸⁴⁶ They suggest that a tension exists between a prerogative regime which consists of ‘shadowy arbitrary</p>

⁸⁴⁴ “The ABCs of the CPI: How the Corruption Perceptions Index Is...,” Transparency International: The Global Coalition against Corruption, December 20, 2021, <https://www.transparency.org/en/news/how-cpi-scores-are-calculated>.

⁸⁴⁵ David Dollar, Raymond Fisman, and Roberta Gatti, “Are Women Really the Fairer Sex? Corruption and Women in Government,” *Journal of Economic Behavior & Organization* 46, no. 4 (December 2001): 423–29, [https://doi.org/10.1016/S0167-2681\(01\)00169-X](https://doi.org/10.1016/S0167-2681(01)00169-X); Anand Swamy et al., “Gender and Corruption,” *Journal of Development Economics* 64, no. 1 (February 2001): 25–55, [https://doi.org/10.1016/S0304-3878\(00\)00123-1](https://doi.org/10.1016/S0304-3878(00)00123-1).

⁸⁴⁶ Janet Elise Johnson, Þorgerður Einarsdóttir, and Gyða Margrét Pétursdóttir, “A Feminist Theory of Corruption: Lessons from Iceland,” *Politics & Gender* 9, no. 2 (June 2013): 174–206, <https://doi.org/10.1017/S1743923X13000032>.

arrangements' that challenge the constitutional state. In such systems, the informal institutions and practices of the prerogative regime, based on chummy networks and neoliberal/gender ideologies, privileged male elites are permitted to transgress proclaimed values of accountability, transparency, and equality. Johnson and colleagues suggest institutionalized corruption is responsible for what they call the 'gender equality policy, weak practice' paradox, in which countries like Iceland (with an extremely high rating on the UN's Gender Inequality Index) can fare well in terms of constitutional policies that promote gender equality, while also having a high degree of corruption (as they did following the 2008 financial crisis). Furthermore, they posit that globalization has shifted the centre of power from government elsewhere so that typically male-dominated elite institutions within the new global finance economy maintain their power despite increased gender equality in many advanced governments.⁸⁴⁷ Hence, women may be permitted to serve within such systems, but are not permitted into the chummy networks, and therefore do not actually have any influence over rates of corruption.

Similar, but with some important differences, is the second theory which comes from Blanes et al. who propose the following alternative mechanisms that may explain the correlation between an individual's gender and their propensity to engage in corruption.⁸⁴⁸

- Within a political democracy, policies may encourage women's increased participation in government while also discouraging corruption.⁸⁴⁹
- Women are typically excluded from the clientelistic, old-boys social and political networks through which corruption flows.⁸⁵⁰
- Corrupt acts entail greater risk to women since such acts produce a stronger backlash against women due to social expectations that hold women to higher standards than men, and hence they cannot afford to be corrupt.⁸⁵¹

A combination of these factors may be at work to explain why a higher percentage of women in government may lower corruption levels. Understanding corruption's role in climate security—both from the bottom-up and the top-down—therefore must take gendered structures into consideration, which the following discussion will do.

⁸⁴⁷ Johnson, Einarsdóttir, and Pétursdóttir, "A Feminist Theory of Corruption."

⁸⁴⁸ N. Blanes et al., "Mapping Controversies Gender and Corruption April 2016" (Paris School of International Affairs, 2016), 26–36, <https://www.semanticscholar.org/paper/Mapping-Controversies-Gender-and-Corruption-April-Blanes-Bockelie/6f9c20d8a3c8da8b47708fc9630c55e3830f2f30>.

⁸⁴⁹ Justin Esarey and Gina Chirillo, "'Fairer Sex' or Purity Myth? Corruption, Gender, and Institutional Context," *Politics & Gender* 9, no. 4 (December 2013): 362, <https://doi.org/10.1017/S1743923X13000378>; Helena Stensöta, Lena Wängnerud, and Richard Svensson, "Gender and Corruption: The Mediating Power of Institutional Logics," *Governance* 28, no. 4 (2015): 475–96, <https://doi.org/10.1111/gove.12120>.

⁸⁵⁰ Esarey and Chirillo, "'Fairer Sex' or Purity Myth?," 362; Daniel Stockemer, "Women's Parliamentary Representation in Africa: The Impact of Democracy and Corruption on the Number of Female Deputies in National Parliaments," *Political Studies* 59, no. 3 (July 19, 2011): 697, <https://doi.org/10.1111/j.1467-9248.2011.00897.x>.

⁸⁵¹ Justin Esarey and Leslie Schwindt-Bayer, "Women's Representation, Accountability and Corruption in Democracies," *British Journal of Political Science* 48, no. 3 (2018): 659–90, <https://doi.org/10.1017/S0007123416000478>; Echazu Luciana, "Corruption and the Balance of Gender Power," *Review of Law & Economics* 6, no. 1 (2010): 69.

Brief comparison of dominant and feminist definitions of Corruption.

Table 43. Short Overview of the Corruption Gender-Climate-Security Linkages.

Human Security ⁸⁵²	Gender Equality-Security Mechanisms
Linkage 3.2.1.A. Corruption may lead to elites siphoning government funds out of public coffers → climate change may prompt governments to adjust public service budgets → public services may be reduced while corrupt practices remain in place → women are likely to be more profoundly impacted by loss of public services	<i>Societal capacity</i>
Linkage 3.2.1.B. Climate change may reduce funds available for government programs and/or individual government officials' income → bribery and extortion may become more commonplace → gender norms that erect more barriers to women accessing government services may offer additional points for increased corruption → women face the unique extortion practice of sexual exploitation requests → women may lack the education to understand the criminality of corrupt practices	<i>Societal capacity</i>
Linkage 3.2.1.C. Women are generally perceived as less corrupt and more transparent than men → gender norms may prevent women from meaningful participation in government and as policymakers → fewer women in government may increase the public's perception that the government is corrupt → political instability may increase, especially following a climate or conflict crisis	<i>Societal capacity</i>
Linkage 3.2.1.D. Perception of honesty within peacebuilding spaces is crucial to durable peace → women are generally perceived as acting more transparently and less corruptly → increasing women's representation on peacebuilding tends to increase the chances that a peace agreement will last longer and be more robust	<i>Societal capacity</i>

⁸⁵² *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

National/International Security⁸⁵³	Pathway	Motivational Mechanisms
Linkage 3.2.1.E. Men tend to pay more in bribes than women → climate-induced government cutbacks may increase corruption and result in curtailment of men's employment or increases in bribes required → increased unemployment among men in urban and rural spaces may make recruitment of men into armed or rebel groups easier	Crime/violence/extremism // Anti-state grievance	[Requires research] <i>SD-surplus males-unemployment</i> [∅]
Linkage 3.2.1.F. Climate change may spark or worsen water scarcity → tensions may exist in how governments manage it → government corruption may fuel increases in criminal gang activity	Crime/violence/extremism	[Requires research] <i>Avoid abuse (typically women)[∅] and exposure to violence/repression (typically men)[∅]</i>
Linkage 3.2.1.G. Climate change may escalate tensions between groups regarding resource management → corruption in government/court systems (especially early in disagreements) may increase likelihood of violence developing	Crime/violence/extremism // Anti-state grievances	[Requires research] <i>Avoid abuse (typically women)[∅] and pull of networks or revenge (typically men)[∅]</i>
Linkage 3.2.1.H. Climate change may change weather patterns that disrupt environmental resources → political corruption may disrupt economic systems connected to the environmental resources → may increase recruitment of young men into rebel groups	Anti-state grievances	[Requires research] <i>Pull of networks (typically men)[∅]</i>

⁸⁵³ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security ⁸⁵³	Pathway	Motivational Mechanisms
Linkage 3.2.1.I. Development programs may be beset by corruption (especially where there is weak rule of law) → may create tensions between groups → the addition of climate-fueled migration may amplify tensions → the likelihood of violence may increase	Grievances between societal groups	[Requires research] <i>Fundamental ideology</i> (either women or men) [∅] and <i>pull of networks</i> (typically men)
Linkage 3.2.1.J. Resource-rich industry often suffers from corruption → climate change may intensify competition for resources → tensions between groups may exist (including across borders)	Interstate tensions	[Requires research] <i>Increase survival</i> (typically women) [∅] or <i>personal security</i> (typically men) [∅]

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with §; those with no research with ∅. For a full explanation of each Linkage, see sections 3.2.1.1 and 3.2.1.2.

3.2.1.1. Corruption and Human Security

Corruption impacts the *Human Security* of women and men differently.

Analyzing GCS-Factor *Corruption* and its gendered impacts within a climate-warming world requires focusing on the individual voices explaining how their lives have been affected by *Corruption* rather than relying solely on the opinions of elites on state-level conditions. As such, the *societal capacity Gender Equality-Security Mechanism* will be the primary focus of the ensuing discussion, with particular attention paid to the following *Gender-Climate-Security Linkages*: first, the bottom-up gendered ways in which *Corruption* disrupts the provision and costs associated with public benefit services (*Healthcare*, piped water, electricity, etc.); and second, the top-down methods for achieving gender balance in government may reduce *Corruption*, and therefore

stabilizing system's against climate hazards in order to avoid disasters or conflict.⁸⁵⁴ The role of the *Gender Equality-Security Mechanism* known as *SD-surplus males-unemployment* will also be briefly discussed

As perhaps humanity's greatest transnational challenge, climate change prevention, mitigation, and recovery initiatives are attracting vast sums of money, and as such are at high risk for *Corruption*. According to an Anti-Corruption Resource Centre report, 41.9% of all climate finance is currently going to the riskiest states in the world in terms of *Corruption*.⁸⁵⁵ Likewise, climate-related disasters attract significant investments as well, often under time-pressures that limit oversight and scrutiny. Given the urgent nature of natural disasters, and the sudden and massive influx of donations from humanitarian organizations, the possibilities for *Corruption* and mismanagement are multiplied in the aftermath.⁸⁵⁶ Without a gender lens, the *Corruption* of such funds may generate projects that amplify gender inequalities, keeping women from seeing the benefits of climate-related initiatives.

Additionally, looking at the bottom-up ways in which *Corruption* impacts those most vulnerable to climate change, it's important to see how *Corruption* gives greater power to those who possess money and influence, and is a way for those currently in power to maintain that power. Corrupt practices are common in the provision of public

⁸⁵⁴ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three '*socioeconomic development*' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*').

⁸⁵⁵ Michael Nest, Saul Mullard, and Cecilie Wathne, "Corruption and Climate Finance," Brief (Chr. Michelsen Institute; U4 Anti-Corruption Resource Centre, 2020), <https://www.u4.no/publications/corruption-and-climate-finance>.

⁸⁵⁶ Gretta Fenner and Mirella Mahlstein, "Chapter 5: Curbing the Risks of and Opportunities for Corruption in Natural Disaster Situations," in *International Law and Standards Applicable in Natural Disaster Situations*, ed. Erica Harper (IDLO, 2009), 243, <https://baselgovernance.org/sites/default/files/2019-01/Corruption%20in%20natural%20disaster%20situations.pdf>.

services such as for *Education, Healthcare, WASH* services, electricity, and land/property rights, as well as in environmental sectors, such as energy, water, natural resources, and land access.⁸⁵⁷ Hossain et al. note that, at baseline, those at the bottom (typically women in patriarchal or neoliberal systems) have less power, and are more reliant on public services; consequently, from a bottom-up perspective, *Corruption* frequently has a disproportionate impact on women's security.⁸⁵⁸

One way that climate-related *Corruption* has a differential gendered impact is in how governments handle public service provision, both in slow-onset and acute climate crises (Linkage 3.2.1.A). As discussed numerous times throughout this study, climate change is expected to constrain government budgets, which may result in the introduction of austerity measures. Any lowering of public benefit spending (resulting in fewer available services) or higher public service costs may cause those who rely on the public services to bear the costs (typically women more than men) due to lost support or rising out-of-pocket expenses.⁸⁵⁹ For instance, a WHO study in South India found that women had to pay bribes to have a doctor present during delivery or to see their babies after giving birth.⁸⁶⁰ Women also frequently experience extortion when looking to obtain official documentation (proof of identity, marriage, death, or residence), seeking employment, or trying to gain access to financial services for running their businesses

⁸⁵⁷ Marco Tavanti and A Stachowicz-Stanusch, "Sustainable Solutions for Human Security and Anti-Corruption: Integrating Theories and Practices," *International Journal of Sustainable Human Security* 1 (December 2013): 1–17.

⁸⁵⁸ Naomi Hossain, Celestine Nyamu Musembi, and Jessica Hughes, "Corruption, Accountability and Gender: Understanding the Connections," Asia Pacific Portal for Gender Equality (UN Women and UNDP, 2010), <https://asiapacificgender.org/resources/19>.

⁸⁵⁹ Hossain, Musembi, and Hughes, "Corruption, Accountability and Gender: Understanding the Connections."

⁸⁶⁰ As found in: Blanes et al., "Mapping Controversies Gender and Corruption April 2016," 53.

(Linkage 3.2.1.B).⁸⁶¹ Bottlenecks in trying to obtain documentation further curtail women's *Human Security* by slowing down many formal processes, and potentially barring women from participating in processes like voting.⁸⁶² Women also face the unique corrupt practice of sexual extortion, which often goes unreported because of cultural norms around such practices.⁸⁶³ As with other types of *Corruption*, climate breakdown may invite higher levels of bribery and extortion as individuals and governments attempt to make up financial shortfalls. If corrupt practices become an intrinsic part of life, women with low *Education* levels or without connections to civil society are often unaware of the criminality of *Corruption* and therefore may be ill equipped to oppose it.⁸⁶⁴

It is important to note that men may face similar bribery requirements to overcome barriers to government spaces, though men typically have a greater understanding of how to engage with corrupt systems, and more resources to deal with extortion.⁸⁶⁵ Nevertheless, data indicate that men often pay more bribes than women, and may experience greater economic disadvantages due to corrupt systems (Linkage 3.2.1.E).⁸⁶⁶ Research could be done to test whether the *SD-surplus males-unemployment* mechanisms is at work and whether it increases susceptibility to recruitment into armed or rebel groups.

⁸⁶¹ Sangeetha Purushothaman et al., "Seeing Beyond the State - Grassroots Womens Perspectives on Corruption and Anti-Corruption" (New York, NY: UN Development Programme, November 15, 2015), 26, <https://www.undp.org/publications/seeing-beyond-state-grassroots-womens-perspectives-corruption-and-anti-corruption>.

⁸⁶² Purushothaman et al., "Seeing Beyond the State - Grassroots Womens Perspectives on Corruption and Anti-Corruption," 28.

⁸⁶³ Blanes et al., "Mapping Controversies Gender and Corruption April 2016," 53.

⁸⁶⁴ Purushothaman et al., "Seeing Beyond the State - Grassroots Womens Perspectives on Corruption and Anti-Corruption," 35.

⁸⁶⁵ Blanes et al., "Mapping Controversies Gender and Corruption April 2016," 53.

⁸⁶⁶ Blanes et al., "Mapping Controversies Gender and Corruption April 2016," 53.

Examining how women’s meaningful participation in government impacts *Corruption* is another way to measure human and climate insecurity. As discussed in section 3.1.6.1, numerous studies demonstrate that due to gender norms, women often lack the experience, *Education*, and access to serve in government. However, when such barriers are removed and women make up a higher share of policymakers, rates of government *Corruption* tend to decrease, while willingness to compromise and perceived government honesty increase.⁸⁶⁷ In post-conflict areas in particular, women are often perceived as acting more transparently and making higher investments in public goods compared to men.⁸⁶⁸ As previously noted in the introduction to this GCS-Factor, it’s unlikely that women are inherently less corrupt; however, for the purposes of analyzing how *Corruption* may influence political stability, given the role perceived *Corruption* plays in public confidence in government (or lack thereof), whether or not women are less corrupt is irrelevant. Instead, what matters is whether audiences perceive women

⁸⁶⁷ Monika L McDermott, “Race and Gender Cues in Low-Information Elections,” *Political Research Quarterly* 51, no. 4 (December 1998): 895–918, <https://doi.org/10.1177/106591299805100403>; Daniel Treisman, “What Have We Learned About the Causes of Corruption from Ten Years of Cross-National Empirical Research?,” *Annual Review of Political Science* 10, no. 1 (June 1, 2007): 211–44, <https://doi.org/10.1146/annurev.polisci.10.081205.095418>; Tiffany D. Barnes and Emily Beaulieu, “Gender Stereotypes and Corruption: How Candidates Affect Perceptions of Election Fraud,” *Politics & Gender* 10, no. 03 (September 2014): 365–91, <https://doi.org/10.1017/S1743923X14000221>; “Women and Leadership: Public Says Women Are Equally Qualified, but Barriers Persist” (Washington, DC: Pew Research Center, January 14, 2015), <https://www.empowerwomen.org/en/resources/documents/2015/10/women-and-leadership-public-says-women-are-equally-qualified-but-barriers-persist?lang=en>.

⁸⁶⁸ Laura McGrew, Kate Frieson, and Sambath Chan, “Good Governance from the Ground Up: Women’s Roles in Post-Conflict Cambodia,” Women Waging Peace Policy Commission (Hunt Alternatives Fund; The Policy Commission, March 2004), https://www.researchgate.net/profile/Laura-McGrew/publication/237288787_Good_Governance_from_the_Ground_Up_Women's_Roles_in_Post-Conflict_Cambodia/links/5f636721458515b7cf39c44e/Good-Governance-from-the-Ground-Up-Womens-Roles-in-Post-Conflict-Cambodia.pdf?_sg%5B0%5D=7Bxmv_xvHalZpyCGtluvB4hhzpwrsQ4RjybiKH1KmkPg3X88gPaa2i_aVATP6cZTSjqYrQHxa9TIVxgaWSiCQ.itbB1-Qjit5dcVXM-u168-9RedGC9ymaX10bCgBCFhxJyfR9FB9kw-LQOp11KyV4dAcrxvUcG8_6FdrALUj3CA&_sg%5B1%5D=M94PCZ3PP3yKhELft3p_j6E68TOqRoo12tFfC2rOu2kKfrbI773gs6IStN_QizoqAyWWbkKqHOflfp_HGqaUAYH0oUU53WYctnoi9rOppMj.itbB1-Qjit5dcVXM-u168-9RedGC9ymaX10bCgBCFhxJyfR9FB9kw-LQOp11KyV4dAcrxvUcG8_6FdrALUj3CA&_iepl=.

leaders as more committed to honesty and trustworthiness. Greater trust in government can ensure political stability and may be an important aspect of avoiding catastrophic violence when climate shocks strike. As such, increasing women's representation has high potential for benefiting the delivering of public services and maintaining stability following climate crises (Linkage 3.2.1.C).

Beyond the delivery of public services, there is the possibility that achieving gender balance in government or in peacebuilding spaces may also reduce the perception of *Corruption* and therefore make peace agreements more robust (Linkage 3.2.1.D). In a study of the link between women's representation and the durability of post-conflict peace, Shair-Rosenfield and Wood find strong empirical support for a correlation between women's representation rates in government and prolonged peace, due in part to a *perception* that women are more accountable/less corrupt.⁸⁶⁹

In sum, there are two important reasons for using a gender lens to examine how *Corruption* impacts institutional stability and climate *Susceptibility*: (1) *Corruption* impacts individual women more profoundly than men due to the ways in which *Corruption* uses gender norms to take advantage of the most vulnerable from the bottom-up, thereby limiting women's *Human Security*; and (2) the influence of women's meaningful involvement in government may have an ameliorating influence on the perception of government *Corruption* from the top down, thereby increasing overall political stability. Consequently, a gender transformative approach to reducing the ways in which *Corruption* threaten *Human Security* would require examining which patriarchal

⁸⁶⁹ Sarah Shair-Rosenfield and Reed M. Wood, "Governing Well after War: How Improving Female Representation Prolongs Post-Conflict Peace," *The Journal of Politics* 79, no. 3 (July 2017): 995–1009, <https://doi.org/10.1086/691056>.

mechanism(s) influence both bottom-up and top-down (those of Johnson et al. or Blanes et al.) impacts.

3.2.1.2. Corruption and National/International Security

Though still nascent, there is growing interest in exploring the connections between climate change, GCS-Factor *Corruption*, and *National/International Security*. This short discussion will explore a handful of studies examining *Corruption*'s role in *anti-state grievances* and *grievances between societal groups*, and perhaps *interstate tensions* as well.⁸⁷⁰

On *crime/violence/extremism*, there are few studies to offer. However, in the context of the West Bank where there is climate-fueled water scarcity and the need to find equitable ways to distribute and conserve water resources, Messer talks of the intersection of Palestinian Authority *Corruption* and Israeli government neglect and the resultant failure to regulate criminal elements (Linkage 3.2.1.F).⁸⁷¹ In such cases, research to test what might motivate women or men to participate in organized crime (for instance, *avoid abuse* for women or *exposure to violence/repression* for men) could be done, and to study whether there are gendered trends in violent crimes as noted in section 1.2.3.2.

Anti-state grievances and *grievances between societal groups* may also erupt because of corrupt practices. In an analysis of eleven resource-based case studies of disputes that escalated into violence in the Sahel, Seter et al. find *Corruption* within

⁸⁷⁰ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

⁸⁷¹ Ellen Messer, "Climate Change and Violent Conflict:" (Oxfam America, 2010), 83, <https://s3.amazonaws.com/oxfam-us/www/static/oa3/files/climate-change-and-violent-conflict.pdf>.

public institutions (such as courts) to be a critical factor in violence escalation, particularly when it hinders conflict resolution early on (Linkage 3.2.1.G).⁸⁷² Similarly, political ecologist Messer has suggested that the combination of low rainfall and political *Corruption* decimated pastoral occupations in Mali, driving young Tuareg men into rebel groups (Linkage 3.2.1.H).⁸⁷³ Messer notes that social and economic development programs in Bangladesh by organizations like BRAC and Grameen Bank have been beset by *Corruption*, which, when combined with weak rule of law in a region with climate-fueled migration, have been associated with outbreaks of violence (Linkage 3.2.1.I).⁸⁷⁴ [Noting that, as discussed in section 1.2.3.3, men are more likely to be involved in violent protests; women may be more involved in low-risk anti-state demonstrations, however no specific research to connect gendered demonstration trends within GCS-Factor *Infrastructure* are available]. It may be useful to study which motivations (for instance, *avoid abuse* (typically women) and *pull of networks* or *revenge* (typically men), and even *fundamental ideology* (both women and men) if ethnic, religious, or racial tensions are involved) for participation in *anti-state grievances* due to *Corruption* combined with climate-caused tensions (no research is available).

Interstate tensions are certainly possible due to corrupt practices. In a case study on Indonesia, Blondel notes the complex relationship between the forest sector, climate change, and conflict: “Addressing the adverse characteristics of Indonesia’s forests sector, in particular the *Corruption* within this dynamic, would underpin peace and security by both mitigating climate change and cutting links between timber and

⁸⁷² Hanne Seter, Ole Magnus Theisen, and Janpeter Schilling, “All about Water and Land? Resource-Related Conflicts in East and West Africa Revisited,” *GeoJournal* 83, no. 1 (February 2018): 169–87, <https://doi.org/10.1007/s10708-016-9762-7>.

⁸⁷³ Messer, “Climate Change and Violent Conflict:,” 66.

⁸⁷⁴ Messer, “Climate Change and Violent Conflict:,” 84.

insecurity” (Linkage 3.2.1.J).⁸⁷⁵ Future research might hypothesize whether *increase survival* (typically women) or *personal security* (typically men) motivations are involved in violence in this regard.

3.2.1.3. Summary of Gender-Climate-Security and Corruption

A summary visualizing Gender-Climate-Security connections to *Corruption* can be found in Figure 22. A list of Diagnostic Questions in Table 62 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

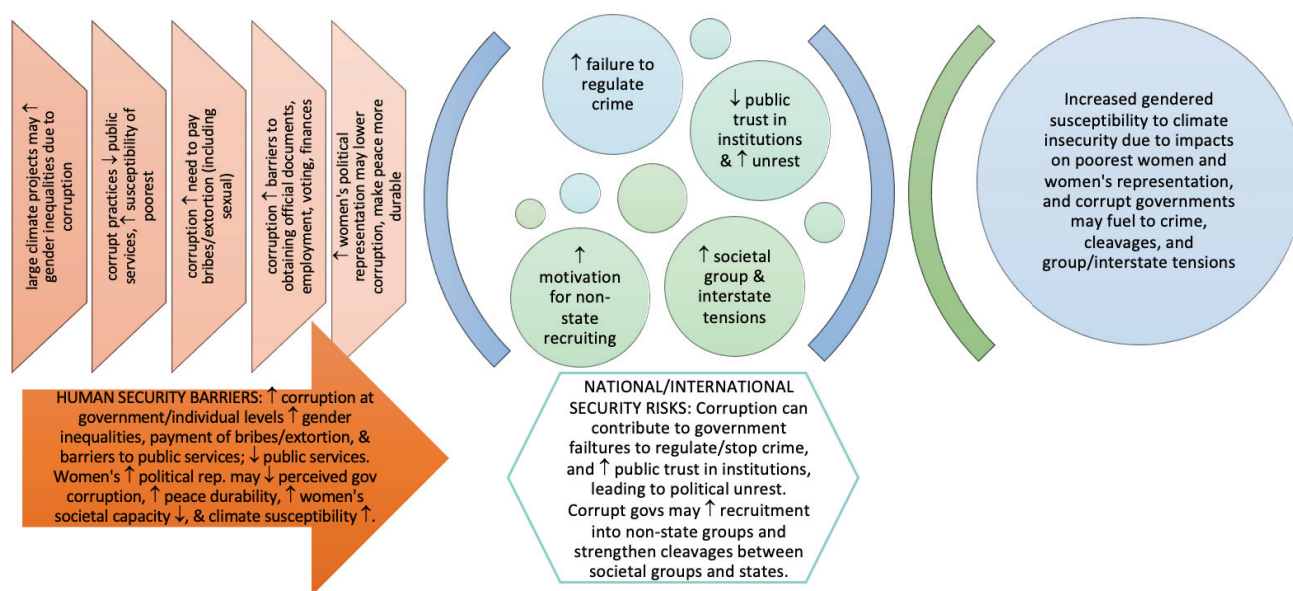


Figure 22. Gendered Climate Security Vulnerabilities in Corruption.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor Corruption.

⁸⁷⁵ Alice Blondel, “Climate Change Fuelling Resource-Based Conflicts in the Asia-Pacific,” Background Papers Series 2012, Asia-Pacific Human Development Report (UN Development Programme, 2012), 38, <https://www.unclearn.org/wp-content/uploads/library/undp304.pdf>.

3.2.2. State Fragility

Table 44. Comparison of Dominant versus FPEcon/FPEcol Approaches to GCS-Factor State Fragility.

Dominant Approach: At the state level, this is a measure of:⁸⁷⁶

- The loss of physical control of its territory or a monopoly on the legitimate use of force;
- The erosion of legitimate authority to make collective decisions;
- An inability to provide reasonable public services;
- The inability to interact with other states as a full member of the international community.

The Fragile States Index (FSI) lists various indicators to measure fragility; the following are some covered in the section to follow: ability to collect taxes or draw on citizen support; involuntary dislocation of the population; sharp economic decline; and demographic pressures (any of which can combine with environmental breakdown, another indicator that may increase fragility).⁸⁷⁷ In addition to these indicators, the FSI also includes group-based inequality/discrimination/persecution; brain drain; among others, but these are either covered in other sections of this study, or lack sufficient literature to explore.

FPEcon/FPEcol Approach: Traditional approaches to understanding state fragility tend to focus on outcome-based indicators (noted above), rather than looking at the root causes of state fragility. Such a focus runs the risk of overly emphasizing national security at the expense of the state's people, the social welfare of which is foundational to state security. Furthermore, if not designed with gender transformation in mind, solutions to state-level fragility (such as improving delivery of basic services without addressing UCDW burdens related to water and energy) are likely to reinforce gendered structures that disadvantage those less privileged, particularly women.⁸⁷⁸

A feminist approach to state fragility, on the other hand, centres gender inequality (and other inequalities) in the discussion, thereby revealing the gender inequities that have far-reaching implications for a system's legal, social, economic, and political stability.⁸⁷⁹ True argues that gendered structures that differentiate issues as masculine

⁸⁷⁶ "What Does State Fragility Mean?," Fragile States Index, accessed May 3, 2022, <https://fragilestatesindex.org/frequently-asked-questions/what-does-state-fragility-mean/>.

⁸⁷⁷ "What Does State Fragility Mean?"

⁸⁷⁸ J. Ann Tickner, "Rethinking the State in International Relations: A Personal Reflection," in *Revisiting Gendered States: Feminist Imaginings of the State in International Relations*, ed. Swati Parashar, J. Ann Tickner, and Jacqui True (New York: Oxford Studies in Gender and International Relations, 2018), <https://doi.org/10.1093/oso/9780190644031.003.0002>.

⁸⁷⁹ Nora Dudwick and Kathleen Kuehnast, "Gender and Fragility: Ensuring a Golden Hour" (Fragility Study Group, November 2016), 2, <https://www.usip.org/sites/default/files/Fragility-Report-Policy-Brief-Gender-and-Fragility-Ensuring-a-Golden-Hour.pdf>.

and feminine, public and private play an important role in how states define their identities and their diplomatic systems.⁸⁸⁰ By rendering some identities (typically men) as valued and legitimate, gendered structures necessarily sideline other identities to obscurity (typically women, but also people of minority ethnicities and genders, and people with disabilities). When national and international structures fail to reflect the diversity of the people within their systems, excluded groups will inevitably refuse to ascribe legitimacy to those structures. As such,

Achieving economic and social justice for marginalized groups would not only provide greater legitimacy for international order, it would generate the constituency to activate and reinforce shared international values and norms. In that respect, the realization of justice for half the world's population—as part of global movements for women's rights to bodily integrity, to equal participation in decision-making, to equal economic opportunity, and to recognition of domestic and care labor—is essential to the prospects for international peace and security.⁸⁸¹

Importantly, True argues that because of the very foundational ways in which patriarchal structures support state identities and interstate relations, “patriarchal unraveling may take unusual and violent forms, threatening the stability of international order and the values upon which it has rested.”⁸⁸² As such, due to the ground-shifting nature of dismantling patriarchal foundations on which many societies are built, though reversing gender inequalities may lower state fragility in the long term, in the short-term transition to a more gender-just society, a state may become more fragile (and women may experience greater backlash) before stability sets in.

For the purposes of this proposed framework, root causes of state fragility, including population dislocation, state legitimacy, as well as gender inequalities in the politics and law, will be explored in depth to understand what role they play in gendered climate insecurity. Other sections of this study have explored the provision of public services, needs of the care economy, and favouritism/persecution, so these topics will not be covered in this section on GCS-Factor *State Fragility*.

Brief comparison of dominant and feminist definitions of State Fragility.

⁸⁸⁰ Jacqui True, “Bringing Back Gendered States: Feminist Second Image Theorizing of International Relations,” in *Revisiting Gendered States: Feminist Imaginings of the State in International Relations*, ed. Swati Parashar and J. Ann Tickner (New York: Oxford Studies in Gender and International Relations, 2018), 33–48, <https://doi.org/10.1093/oso/9780190644031.003.0003>.

⁸⁸¹ True, “Bringing Back Gendered States.”

⁸⁸² True, “Bringing Back Gendered States.”

Table 45. Short Overview of the State Fragility Gender-Climate-Security Linkages.

Human Security ⁸⁸³	Gender Equality-Security Mechanisms
Linkage 3.2.2.A. Climate disasters are likely to prompt many to relocate as a form of adaptation → host states may view migrants as threats → states may use hypermasculine language ('migrant threat') and approaches ('securitizing borders') to address the challenge → renders humans as a menace and shifts responsibility to vulnerable groups	<i>Societal capacity</i>
Linkage 3.2.2.B. Gendered norms and structures bar women from accessing/owning spaces related to education, healthcare, mobility, ability to work, bodily health, ability to network, private property → women may lack the capabilities to migrate or choose to adapt in place if they so choose → women's susceptibility to climate hazards may intensify over successive disasters → women's climate insecurity may contribute to state fragility	<i>Societal capacity</i>
Linkage 3.2.2.C. At the household level, gender norms around work typically restrict women to UCDW responsibilities and often exclude women from decisions about asset control → women are often excluded from migration decisions → lack of information, preparation time, and choice may shrink women's relocation choices and lower mental/physical health → women are less able to contribute to state stability	<i>Societal capacity</i>
Linkage 3.2.2.D. At the macro level, women are often excluded from government leadership and community decision-making structures → climate change may require entire communities to relocate → women are frequently not consulted regarding these decisions → lack of information, preparation time, and choice may shrink women's relocation choices and lower mental/physical health → women are less able to contribute to state stability	<i>Societal capacity</i>
Linkage 3.2.2.E. Slow-onset and acute climate breakdown may trigger population relocations → along the journey, women (and children) may face higher SGBV risks → physical	<i>Societal capacity</i>

⁸⁸³ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three 'socioeconomic development' (SD), (referred to as 'SD-urban surplus males-state-based conflict,' 'SD-surplus males-non-state conflict,' and 'SD-surplus males-unemployment').

Human Security⁸⁸³	Gender Equality-Security Mechanisms
and psychological trauma from assault may increase climate susceptibility	
Linkage 3.2.2.F. Climate disaster may cause sudden relocations → individuals may experience psychological trauma from climate disaster, the move, breaking of social ties, the responsibility to care for family → women may experience higher rates of PTSD → may increase susceptibility to climate impacts and decrease state stability	<i>Societal capacity</i>
Linkage 3.2.2.G. Climate change may induce women-headed households to relocate → women are often refused aid at their destinations without a male head of household	<i>Societal capacity</i>
Linkage 3.2.2.H. Climate migration often leads people to IDP camps → camp systems are often maintained in part by residents → women are often tasked with additional camp maintenance/caretaking duties on top of their existing UCDW tasks → women's bodily depletion and adaptation may be diminished	<i>Societal capacity</i>
Linkage 3.2.2.I. Many climate migrants end their journeys in IDP camps → often gender-separate toilets/showers are unavailable → men are more frequently given security access to many spaces that women are not → women face increased risks of SGBV → women's climate susceptibility may increase	<i>Societal capacity</i>
Linkage 3.2.2.J. Climate migrants often land in IDP camps → decisions about camp management are often made by community members → women are typically barred from taking leadership positions on such committees → women are unable to advocate for their needs → women's climate susceptibility may increase	<i>Societal capacity</i>
Linkage 3.2.2.K. Men may migrate from villages into urban centres to seek better employment opportunities → men may not achieve the socioeconomic mobility they expected → men may face frustration that lowers their ability to adapt to and recover from crises	<i>Societal capacity</i>

Human Security⁸⁸³	Gender Equality-Security Mechanisms
<p>Linkage 3.2.2.L. Climate-induced gender-selective migration may result in the feminization of the household → gendered norms regarding marriage, land/property ownership, divorce/child custody laws, kinship systems may impact a woman’s ability to adapt without her partner → women face expulsion/exploitation by other family members, increased poverty, more social reproduction demands, lower education, greater physical burdens → may diminish women’s physical/mental health and adaptability</p>	<p><i>Societal capacity</i></p>
<p>Linkage 3.2.2.M. A changing climate requires more state-based decision-making to prepare for and respond to climate crises → gender norms frequently exclude women from science/technology education and climate decision-making spaces → women’s needs and perspectives may be excluded from plans and may render the state illegitimate to women (Bellina et al.’s input/process legitimacy) → may increase women’s susceptibility and state instability to climate change</p>	<p><i>Societal capacity</i></p>
<p>Linkage 3.2.2.N. Patriarchal norms and structures may limit women’s access to but also greater dependence on public benefit services → climate change is likely to strain government budgets → governments may be less capable of delivering public benefits → may erode women’s trust in their government (Bellina et al.’s output or performance legitimacy) → may increase state fragility</p>	<p><i>Societal capacity</i></p>
<p>Linkage 3.2.2.O. Lack of a shared belief (Bellina et al.’s shared belief system) in gender equality may render a government less legitimate in the eyes of women (and some men) → systems that are imbalanced and male-dominated (divorce, child custody, inheritance, property laws favour men; polygamy/child marriage are legal; sexual aggression is permitted; gendered power structures are common) tend to normalize other inequities and violence → such systems are less stable and more susceptible to climate shocks</p>	<p><i>Societal capacity</i></p>

Human Security ⁸⁸³		Gender Equality-Security Mechanisms
Linkage 3.2.2.P. International actors make judgements about a state's legitimacy (Bellina et al.'s international legitimacy) → states that lack gender justice/equality are generally perceived as less legitimate → international intervention may result → overly high international aid or long-term presence of international actors can undermine legitimacy → lowers overall state stability		<i>Societal capacity</i>
National/International Security ⁸⁸⁴	Pathway	Motivational Mechanisms
Linkage 3.2.2.Q. Climate change is likely to increase involuntary population dislocation → migrant populations are often targets for human trafficking and other organized criminal activity → both women and men can be trapped in human slavery for different reasons → state legitimacy is harmed as a result	Crime/violence/extremism	[Requires research] Men more likely to be involved in violent crime [⊗]
Linkage 3.2.2.R. Climate-induced gender-selective migration may result in population sex ratio imbalances in sending or destination systems → such imbalances may increase rates of crime and violence as discussed in 3.1.2.2	Crime/violence/extremism	[Requires research] <i>SD-urban surplus males-state-based conflict</i> [⊗]
Linkage 3.2.2.S. Many countries will take a hypermasculine approach to dealing with climate migration → may result in rhetoric concerning migrants as 'threats' and the need to 'securitize borders' → 'unpalatable' populations will be forcibly turned into punishable criminals → if denied legal employment and residency, in attempts to survive, climate migrants will <i>de facto</i> become criminals	Crime/violence/extremism	<i>NA (involuntary)</i> [⊗]

⁸⁸⁴ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy's 'Intermediary Mechanisms' (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

National/International Security ⁸⁸⁴	Pathway	Motivational Mechanisms
<p>Linkage 3.2.2.T. Men may be more likely to engage in climate-based migration → men may relocate into a region with climate-caused budget-constraints → if employment opportunities are insufficient, men may have a lower sense of state legitimacy → may be easier to recruit men into armed/rebel groups</p>	<p>Anti-state grievance // Grievances between societal groups</p>	<p>[Requires research] <i>SD-urban surplus males-unemployment</i>[∅]</p>
<p>Linkage 3.2.2.U. Populations may migrate due to climate change → cleavages between groups may form or deepen → lack of socioeconomic mobility, ill health, fear of eviction, harassment, violence, trauma, alienation may stoke grievances → governments unable to deal with the tensions may lose credibility → may be easier to recruit into protests or rebel groups (depending on social networks)</p>	<p>Grievances between societal groups</p>	<p><i>Increase survival or avoid abuse</i>[§] (typically women) and <i>pull of networks</i>,[§] <i>exposure to violence/repression</i>,[§] or <i>revenge</i>[§] (typically men)</p>
<p>Linkage 3.2.2.V. Climate change may trigger mass movements of people → state legitimacy may decline in sending countries → destination countries may initiate conflict with countries severely impacted mass exodus of their people</p>	<p>Interstate tensions</p>	<p>[Requires research] <i>SD-urban surplus males-unemployment (Gender Equality-Security Mechanism)</i>[∅] and motivations such as <i>increase survival</i> (more typically women),[∅] <i>revenge</i> (typically men), or the <i>pull of networks</i> (typically men)[∅]</p>

The above table offers Gender-Climate-Security Linkages, which can be referenced in the discussion that follows by the Linkage number. National/International Security Linkages with strong findings for Motivational Mechanisms are marked with §; those with no research with ∅. For a full explanation of each Linkage, see sections 3.2.2.1 and 3.2.2.2.

3.2.2.1. State Fragility and Human Security

The following section will discuss two broad climate-impacted factors that affect the *State Fragility* GCS-Factor within the *Gendered Climate-Security Lifecycle*—population dislocation and state illegitimacy. Specifically, the population dislocation discussion looks at how gender inequalities lead to the triggering of several *Gender-Climate-Security Linkages* related to who migrates, the impacts of gender-selective migration on household and community stability, and the gendered conditions people find themselves in post-decision to migrate. In the discussion on state illegitimacy, focus turns to the intersection of climate, gender, and four sources of state legitimacy: input/process legitimacy, output/performance legitimacy, shared belief systems, and international legitimacy, with *Gender-Climate-Security Linkages* for each. Primarily, these linkages underpin the *societal capacity Gender Equality-Security Mechanism*.⁸⁸⁵

Population dislocation may be a significant source of state fragility in a warming world. The US National Intelligence Council has identified migration into areas of economic opportunity and away from climate and conflict instability as one of the biggest drivers of population movements globally.⁸⁸⁶ A 2021 World Bank Group report estimated that by 2050, there could be as many as 216 million internal migrants.⁸⁸⁷ The largest number is expected in Sub-Saharan Africa, East Asia and the Pacific, South Asia, and

⁸⁸⁵ *Human Security Gender-Climate-Security Linkages* are categorized based on Forsberg and Olsson's *Gender Equality-Security Mechanisms* including *societal capacity*, or one of three '*socioeconomic development*' (SD), (referred to as '*SD-urban surplus males-state-based conflict*,' '*SD-surplus males-non-state conflict*,' and '*SD-surplus males-unemployment*').

⁸⁸⁶ "Global Trends 2030: Alternative Worlds" (December 2012: National Intelligence Council, 2012), 20–25, https://www.dni.gov/files/documents/GlobalTrends_2030.pdf; Lukas Rüttinger et al., "A New Climate for Peace: Taking Action on Climate and Fragility Risks, An Independent Report Commissioned by the G7 Members" (Berlin: G7 Environment, Conflict, and Cooperation, 2015), 6, 27, <http://www.newclimateforpeace.org>.

⁸⁸⁷ Viviane Clement et al., "Groundswell Part 2: Acting on Internal Climate Migration," Working Paper (Washington, DC: World Bank Group: Open Knowledge, September 13, 2021), xxii, <https://openknowledge.worldbank.org/handle/10986/36248>.

North Africa, with the poorest and most climate-vulnerable regions likely to also lack the economic, social, and livelihood safety nets to handle such movements of people.⁸⁸⁸ Over the past 60 years, the gender mix (including children) of migrants has remained relatively stable: ~52% male and ~48% female according to the UN Department of Economic and Social Affairs, though women have started to outpace men who migrate in Oceania and Europe.⁸⁸⁹

The interactions between climate change, migration, and *State Fragility* are numerous and complex. Climate change may drive drought and food insecurity, water shortages, riverine and coastal flooding, or landslides and wildfires, any combination of which may push populations to migrate internally or internationally, temporarily or permanently.⁸⁹⁰ Such mass migrations may contribute to increased strain on public services and *Infrastructure*, shifts in unemployment levels, and unrest and *State Fragility* which can take place in one state and have spill-over effects into neighbouring states.⁸⁹¹ Discursively, national rhetoric on population dislocation often reflects hypermasculine views of mass migration using terms such as ‘threat’ and ‘securitizing borders,’ as well as treating migrants (including women) as national threats in need of control (Linkage 3.2.2.A).⁸⁹²

⁸⁸⁸ Clement et al., “Groundswell Part 2,” xxii.

⁸⁸⁹ “Gender and Migration,” IOM Migration Data Portal, accessed May 10, 2022, <https://www.migrationdataportal.org/themes/gender-and-migration>.

⁸⁹⁰ Julie Maldonado, “Climate Change and Displacement: Human Rights and Local Knowledge as Guiding Principles for New Policy Initiatives,” in *Climate Change and Fragile States: Rethinking Adaptation*, ed. Mohamed Hamza and Cosmin Coredea (Hohenkammer, Germany: Institute for Environment and Human Security, United Nations University, 2011), <https://collections.unu.edu/eserv/UNU:1884/pdf9717.pdf>.

⁸⁹¹ Caitlin E. Werrell and Francesco Femia, “Fragile States: The Nexus of Climate Change, State Fragility and Migration,” *Angle Journal*, 2015, <https://anglejournal.com/article/2015-11-fragile-states-the-nexus-of-climate-change-state-fragility-and-migration/>.

⁸⁹² Phudoma Lama, Mo Hamza, and Misse Wester, “Gendered Dimensions of Migration in Relation to Climate Change,” *Climate and Development* 13, no. 4 (April 21, 2021): 326–36, <https://doi.org/10.1080/17565529.2020.1772708>.

Some feminist critiques suggest that approaching migration as a *State Fragility* issue is problematic for *Human Security*, and that instead, migration should be viewed as an adaptation strategy rather than a security threat, though other feminists have argued that doing so shifts responsibility for handling the burden of migration from the state to vulnerable communities themselves.⁸⁹³ According to Barnett and Adger, an individual's, household's, or system's ability to return to a previous state following external shocks is often a powerful factor that will determine whether there is sufficient ability (including capabilities, rights, choices) to adapt-in-place to climate change, and if not, prompt relocation as a form of adaptation.⁸⁹⁴ They state:

As a matter of principle, people should have the right to remain living where they choose to, and so this suggests that a right to adaptation in place is as important as a right to migration. Capabilities, rights, and freedoms ... enable people to respond in ways that suit their needs and values. ... By the same token, many people can and may choose to utilize mobility as a form of adaptation, and so freedom of movement within and across borders will be an increasingly important determinant of demographic and environmental futures.⁸⁹⁵

Yet the capabilities and rights/freedoms to choose may be highly gendered, thereby preventing some from migrating when they wish to do so, or forcing others to migrate when they do not wish to do so, either of which may have deleterious impacts on climate security. Looking at capabilities and rights/freedoms in turn, it is easy to see how the intersection of gendered population dislocation and *State Fragility* rest foundationally in the *Gender Equality-Security Mechanism of societal capacity*.

⁸⁹³ Delf Rothe, "Gendering Resilience: Myths and Stereotypes in the Discourse on Climate-Induced Migration," *Global Policy* 8 (March 30, 2017): 40–47, <https://doi.org/10.1111/1758-5899.12400>.

⁸⁹⁴ Jon Barnett and W. Neil Adger, "Mobile Worlds: Choice at the Intersection of Demographic and Environmental Change," *Annual Review of Environment and Resources* 43, no. 1 (2018): 256–57, <https://doi.org/10.1146/annurev-environ-102016-060952>.

⁸⁹⁵ Barnett and Adger, "Mobile Worlds," 256–57.

To start, Barnett and Adger define capabilities in the migration context as including: *Education, Healthcare*, mobility, ability to work, bodily health, ability to affiliate with others, and ability to hold property.⁸⁹⁶ Hunter and David take a slightly different approach by considering assets, such as human capital (labour), financial capital (savings), physical capital (vehicles), social capital (networks), and natural capital (such as wild foods).⁸⁹⁷ In either approach to the capabilities question, cultural norms and gendered power structures may vastly limit women's access to and control over resources in spaces that support each of these capabilities, discussed at length in other sections of this study.

Consequently, capabilities, which are often contingent on gender- and location-based conditions, play a role in determining who can migrate, and may result in gender-selective migration. Consider the many ways in which changes in capabilities create push factors for migration, impacting women and men differently. Sudden climate-induced disasters are more likely to result in immediate capabilities losses, generating local (often temporary) displacements, while gradual climate changes may create long-term capabilities losses, and are expected to diffuse displacements over larger areas and time spans as regional economic trends, incentives and disincentives, and urbanization processes develop.⁸⁹⁸ The following are a few examples of the interaction of gender, climate, and capabilities. Meze-Hausken has found that capital-rich households (typically headed by men) tend to delay migration for longer, but when they do migrate, capital-rich

⁸⁹⁶ Barnett and Adger, "Mobile Worlds."

⁸⁹⁷ Hunter and David, "Climate Change and Migration: Considering the Gender Dimensions," 2.

⁸⁹⁸ Barnett and Adger, "Mobile Worlds," 249.

households tend to travel further.⁸⁹⁹ Examining climate migration in Southern Ecuador, Gray found that when women migrate, they tend to stay closer to their original homes compared to men, possibly due to lower capital wealth, suggesting that should they be unable to travel far enough to find new opportunities, adaptation capacity may be limited.⁹⁰⁰ In studying Nepal, Massey et al. found when climate change impinged on people's fuel collecting capabilities, the impacts were gendered; when gathering firewood (typically done by men) required an extra 100 minutes, men were 16% more likely to migrate (no impact on women's tendency); when gathering fodder (typically done by women) required an additional 100 minutes, women were 21% more likely to migrate (no impact on men).⁹⁰¹ This suggests that the same number of additional minutes required to complete gendered task results in a different level of migration urgency in women and men, indicating that gender-based responsibilities should be examined locally to determine how they may influence climate-driven migration patterns. Meze-Hausken also find that out-migration starts sooner in smaller families, likely due to the ability to accommodate all members of the household in a new location and availability of funds for transport.⁹⁰² Consequently, such gender-based capability barriers as those noted here can trap households, including many headed by women, in severe climate vulnerability.⁹⁰³

Climate change can also shift capabilities to create gendered pull factors that impact a person's ability to migrate. Research by Annecke and Masika et al. notes that

⁸⁹⁹ Elisabeth Meze-Hausken, "Migration Caused by Climate Change: How Vulnerable Are People in Dryland Areas?," *Mitigation and Adaptation Strategies for Global Change* 5, no. 4 (2000): 379–406, <https://doi.org/10.1023/A:1026570529614>.

⁹⁰⁰ Clark L. Gray, "Environment, Land, and Rural Out-Migration in the Southern Ecuadorian Andes," *World Development* 37, no. 2 (February 2009): 463, <https://doi.org/10.1016/j.worlddev.2008.05.004>.

⁹⁰¹ Douglas S. Massey, William G. Axinn, and Dirgha J. Ghimire, "Environmental Change and Out-Migration: Evidence from Nepal," *Population and Environment* 32, no. 2 (2010): 109–36, <https://doi.org/10.1007/s11111-010-0119-8>.

⁹⁰² Meze-Hausken, "Migration Caused by Climate Change," 397.

⁹⁰³ Lama, Hamza, and Wester, "Gendered Dimensions of Migration in Relation to Climate Change."

men often migrate to find work, especially following natural disasters or in the face of diminishing resources (implying combined push-pull factors).⁹⁰⁴ Increasingly, however, studies show that women migrate as well, usually to urban centres, because of the availability of employment. In particular, while men often migrate for high-skill employment (higher human capital capabilities which lead to higher paying jobs), women increasingly are recruited into low-skill employment, especially social reproduction roles such as caregivers, cleaners, or travel industry support workers (requiring low human capital capabilities and offering lower paid employment).⁹⁰⁵ Such pull factors are location-dependent, according to Chant, and are contingent on the types of jobs and levels of income offered in each region.⁹⁰⁶ A woman's ability to migrate if she chooses may be a crucial determinant in her ability to adapt to climate change; those for whom migration is necessary but not an option due to lack of capabilities may experience severe lack of adaptive ability, potentially detracting from a community's ability to weather the challenges of climate change (Linkage 3.2.2.B).

In addition to varying capabilities determining the likelihood of migration, gendered freedom to direct one's life (one's right to relocate and freedom to choose) also plays an important role in the *Human Security* aspect of population dislocation. For instance, Huber argues that crises (such as climate breakdown or even migration itself) locate women in situations that reduce their human rights.⁹⁰⁷ Women's rights and choices

⁹⁰⁴ Wendy Annecke, "Climate Change, Energy-Related Activities and the Likely Social Impacts on Women in Africa," *International Journal of Global Environmental Issues* 2, no. 3/4 (2002): 207–22, <https://doi.org/10.1504/IJGENVI.2002.002400>.

⁹⁰⁵ Hunter and David, "Climate Change and Migration: Considering the Gender Dimensions," 8.

⁹⁰⁶ Sylvia Chant, "Households, Gender and Rural-Urban Migration: Reflections on Linkages and Considerations for Policy," *Environment and Urbanization* 10, no. 1 (April 1998): 10, <https://doi.org/10.1177/095624789801000117>.

⁹⁰⁷ Laura Huber, "One Step Forward, One Step Back: The Micro-Level Impacts of Conflict and Aid on Women's Rights" (n.d.), http://www.laurahuber.com/uploads/8/6/6/1/86619636/huber_chapter_5.pdf.

for when and how far to migrate tend to be linked to norms around care responsibilities, divisions of labour, and asset control, as well as how quickly a household begins to feel the pain of a changing climate. Critically, gendered power hierarchies within families and communities frequently determine how much choice women have about whether or not to migrate (Linkage 3.2.2.C).⁹⁰⁸ Chant has found that most women have little to no influence over decisions related to their own migration or that of family members.⁹⁰⁹ Crucially, women may not even be able to contemplate a migration journey if discriminatory practices prevent them from obtaining passports without the permission of a male family member.⁹¹⁰

On a macro level as well, women are frequently left out of decision-making regarding community relocation (Linkage 3.2.2.D). Bertana found that Fijian women were not invited to discussions on relocation with government officials, nevertheless the government stated there was “complete consensus.”⁹¹¹ Similarly, Tanyag and True found women in Vanuatu were barred from participation in village decision spaces regarding the nature and timing of forced relocation.⁹¹² Without decision-making control over their own lives, women’s capacity to cope with climate change may be diminished due to lack of information, preparation time, and choice over where and how she relocates.

⁹⁰⁸ Huber, “One Step Forward, One Step Back: The Micro-Level Impacts of Conflict and Aid on Women’s Rights.”

⁹⁰⁹ Chant, “Households, Gender and Rural-Urban Migration.”

⁹¹⁰ Gaëlle Ferrant et al., “The Role of Discriminatory Social Institutions in Female South-South Migration” (OECD Development Centre, April 2014), 9, https://www.oecd.org/dev/development-gender/SIGI%20and%20Female%20Migration_final.pdf.

⁹¹¹ Amanda Bertana, “The Role of Power in Community Participation: Relocation as Climate Change Adaptation in Fiji,” *Environment and Planning C: Politics and Space* 38, no. 5 (August 2020): 902–19, <https://doi.org/10.1177/2399654420909394>.

⁹¹² Maria Tanyag and Jacqui True, “Gender-Responsive Alternatives on Climate Change from a Feminist Standpoint,” in *Climate Hazards, Disasters, and Gender Ramifications* (London: Routledge, 2019), 17, <https://doi.org/10.4324/9780429424861-2>.

Post-decision to migrate, the journey itself may be gendered and hence also has an impact on women's *Human Security*. Two points are of particular importance: (1) the migration journey and destination conditions will be different for women and men, and (2) a climate migration may change the gender composition of a household, which may profoundly impact its ability to adapt to climate change and stability in the wider state context. First, women and men who migrate will experience various levels of positives and negatives from the journey and in the final destination which will impact their ability to adapt and recover from climate breakdown. To begin, both during the journey to a new location and after resettlement, women tend to experience greater risk of SGBV due to lack of safe routes and lack of safe shelters (Linkage 3.2.2.E).⁹¹³ The combined trauma of a climate disaster, the need to migrate, the breaking of social ties, and the responsibility to care for other family members has been shown by Mitchell et al. to pose a greater psychological burden on women than men (Linkage 3.2.2.F).⁹¹⁴ Additionally, once a woman arrives in a new location, she may be denied access to aid if she is not the head of her household (Linkage 3.2.2.G).⁹¹⁵

Should migration lead women to IDP camps, they may face additional challenges (and opportunities). Work by Cheesman and Farrelly notes that, due to strained resources amidst expectations of women's engagement in social reproduction activities, women in IDP camps must often perform more caretaking duties than they would otherwise.⁹¹⁶

Additionally, women are frequently expected to undertake additional tasks around the

⁹¹³ Chindarkar, "Gender and Climate Change-Induced Migration."

⁹¹⁴ Mitchell, Tanner, and Lussier, "We Know What We Need."

⁹¹⁵ Chindarkar, "Gender and Climate Change-Induced Migration."

⁹¹⁶ Jenny Hedström, "4. A Feminist Political Economy Analysis of Insecurity and Violence in Kachin State," in *Conflict in Myanmar: War, Politics, Religion*, ed. Nick Cheesman and Nicholas Farrelly (Singapore: ISEAS Publishing, 2016), 80, <https://doi.org/10.1355/9789814695879-009>.

camps, such as cleaning and building houses (Linkage 3.2.2.H).⁹¹⁷ Furthermore, SGBV and exploitation are frequent problems in IDP camps due to lack of separate sanitation, hygiene, and sleeping areas for women and men, and because men from within the camps are often given security responsibilities, and use that power to gain access to women's private spaces (Linkage 3.2.2.I).⁹¹⁸ Many of these challenges could be addressed if women's needs were made known to camp committees, however women are frequently barred from participating in such decision-making spaces (Linkage 3.2.2.J).⁹¹⁹ Combined, these pressures leave women with less time for income generating activities and greater bodily depletion.

Dislocation can have downsides for men as well. For instance, while relocating may offer new employment opportunities, men don't always make upward socioeconomic mobility when they migrate (Linkage 3.2.2.K). What's more, Sharma explains:

Work also involves bodily harm, fatigue, social dislocation, and debt entrapment. While an increasing number of men seek to assert their masculinity through labour mobility, both in the form of earnings and wider experience beyond village life, this does not automatically translate into affirmation of identity, as many struggle to save money and end up working in difficult environments that offer very little possibility for social mobility. Moreover, social pressure often results in spending whatever savings are accrued on gifts or conspicuous consumption rather than on more productive endeavours.⁹²⁰

These types of risks may endanger men's ability to adapt to and recover from climate disasters, and therefore should also be considered in climate migration contexts.

⁹¹⁷ Hedström, "4. A Feminist Political Economy Analysis of Insecurity and Violence in Kachin State," 80.

⁹¹⁸ Hedström, "4. A Feminist Political Economy Analysis of Insecurity and Violence in Kachin State," 81.

⁹¹⁹ Note, however, that gifts can be used as a way to build social networks. Hedström, "4. A Feminist Political Economy Analysis of Insecurity and Violence in Kachin State," 81.

⁹²⁰ Jeevan Raj Sharma, "Bodies in Search of Freedom: Changing Rural Political Economy and Nepal's Marginal Migrants," *Economic and Political Weekly* 51, no. 21 (2016): 56.

Nevertheless, well-designed approaches to addressing population dislocation may offer opportunities for undoing gender inequalities through the re-writing of laws and redistribution of wealth and land; such gender transformative approaches may even have the effect of stabilizing governments rather than destabilizing them.⁹²¹ For instance, should migrant women relocate to urban centres, they may experience increased access to *Education* and public services, higher levels of income (and remittances sent back to families), and increased social networking and risk sharing.⁹²² Additionally, Huber shows that while crises such as migration often reduce women's rights, in some cases, crises can offer opportunities for the advancement of women's rights (for instance, through exposure to liberal ideas on women's rights, encouragement to receive aid that improves women's rights, as well as better living standards).⁹²³

In addition to the gendered impacts of a migration journey and destination conditions, the second important post-migration factor to consider is how the transition may change the gender composition of the household. The feminization of a household (in a cis-gender relationship between a woman and a man) results when one or the other partner migrates alone. Regardless of whether she is the one to migrate or stay home, in such cases, women typically take responsibility for caring for the household's other family members in the absence of her male partner.⁹²⁴ According to Chant, household feminization may be both positive and negative for women, and is mediated by many

⁹²¹ Thomas F. Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases," *International Security* 19, no. 1 (1994): 5–40, <https://doi.org/10.2307/2539147>; Jame Huang, "Can Climate Change Increase the Likelihood of State Fragility?" (Baltimore, Johns Hopkins University, 2018), <https://jscholarship.library.jhu.edu/bitstream/handle/1774.2/59876/Huang%2C%20Jame.pdf?sequence=1>.

⁹²² Cecilia Tacoli, "Crisis or Adaptation? Migration and Climate Change in a Context of High Mobility," *Environment and Urbanization* 21, no. 2 (2009): 513–25, <https://doi.org/10.1177/0956247809342182>.

⁹²³ Huber, "One Step Forward, One Step Back: The Micro-Level Impacts of Conflict and Aid on Women's Rights," 19; Natalie Mahmood Dyvesether, "The Effects of Internal Armed Conflict on Women's Labour Rights" (Master's Thesis, Oslo, University of Oslo, 2019), <https://www.duo.uio.no/handle/10852/71418>.

⁹²⁴ Chant, "Households, Gender and Rural-Urban Migration," 15.

other factors such as marriage, land and property ownership, laws on divorce and child custody, and kinship systems, among others, resulting in significant variation between countries.⁹²⁵ Women-headed households face challenges such as increased *Poverty* (and increased intergenerational *Poverty*); intensification of social reproduction demands on a woman's time; lower health outcomes due to poor socioeconomic status and high physical burdens; decreased mental health; and lower rates of literacy, to name a few that may impact her adaptive abilities.⁹²⁶ Lacking rights to land and asset ownership, when male household heads leave, women may have to shift livelihood responsibilities, and extended family members and community members may expulse and/or exploit those who are left behind, especially if there are existing tensions between families or groups (Linkage 3.2.2.L).⁹²⁷ Nevertheless, women's climate *Susceptibility* may be improved through household feminization. For instance, a woman may prefer to be without a male partner, and on her own, may enjoy freedom from emotional abuse and SGBV, and therefore improved mental health.⁹²⁸ The lack of a male partner may offer a woman increased autonomy over her finances, how she structures her time, and how many unpaid household tasks she performs.⁹²⁹ Chant also notes that household feminization

⁹²⁵ Chant, "Households, Gender and Rural-Urban Migration," 15.

⁹²⁶ Javad Yoosefi Lebni et al., "Challenges and Opportunities Confronting Female-Headed Households in Iran: A Qualitative Study," *BMC Women's Health* 20, no. 1 (2020), <https://doi.org/10.1186/s12905-020-01046-x>.

⁹²⁷ Vikram Kolmannskog, "Climate Change, Disaster, Displacement and Migration: Initial Evidence from Africa," *New Issues in Refugee Research Service (UNHCR Policy Development and Evaluation, December 2009)*, 11, <https://digitallibrary.un.org/record/698495>; Fatma Osman Ibnouf, "Challenges and Possibilities for Achieving Household Food Security in the Western Sudan Region: The Role of Female Farmers," *Food Security* 3, no. 2 (June 2011): 215–31, <https://doi.org/10.1007/s12571-011-0118-3>.

⁹²⁸ Chant, "Households, Gender and Rural-Urban Migration," 17.

⁹²⁹ Chant, "Households, Gender and Rural-Urban Migration," 17.

may also have knock-on benefits for children: girls may have increased access to educational opportunities and a household's children may receive more nutritious food.⁹³⁰

The interactions between gender, involuntary climate-induced population dislocation, and *State Fragility* are therefore nuanced and complex, requiring a context-based approach to understanding the specific dynamics in each region. Determining to what extent gender may erode state stability requires understanding who can make decisions when population dislocation is inevitable; whose needs are taken into consideration during the journey and in the destination; what rights are conferred on climate migrants in destination countries; and so on. Referring to Forsberg and Olsson's work, more than likely, systems that devalue the lives and contributions of women (lower their societal capacity) will experience higher levels of instability and therefore greater risk of fragility sliding into violence and conflict.

Turning now to how climate-caused state illegitimacy can impact *State Fragility*, the following portion of this GCS-Factor discussion will show that rendering of some identities as valued and legitimate (masculine) and others as invisible and unvalued (feminine) increases the risks state illegitimacy, and therefore its political instability. Feminist literature on the interaction of state illegitimacy, climate change, and gender is scant, nevertheless, some inferences based on other disciplines can be made. This discussion will be guided by four sources of state legitimacy defined by Bellina et al. (input/process legitimacy, output/performance legitimacy, shared belief systems, and

⁹³⁰ Chant, "Households, Gender and Rural-Urban Migration," 17.

international legitimacy), each of which intersects with gender and climate security within the *societal capacity Gender Equality-Security Mechanism*.⁹³¹

Bellina et al. define the first source of state legitimacy as input or process legitimacy, which includes the rules or procedures through which people participate in state decisions and hold power to account, and through which the state makes binding decisions—rules and procedures which are codified through law or informed by customary practices and rules.⁹³² The importance of input legitimacy to *State Fragility* is illustrated by a 2008 Brookings State Weakness index, which notes that states are more susceptible to destabilizing events when they offer fewer civil liberties and political rights.⁹³³ Given the likelihood of increased climate-related emergencies, it is important to understand gender’s role in input legitimacy. A 2019 OECD Social Institutions and Gender Index report concluded that gender discrimination in civil liberties globally is 29%, and that in 49 countries women still have fewer legal rights than men.⁹³⁴ As with women’s civil liberties and political rights in general, in climate security policymaking, women have largely been absent from framing discussions and decision-making, and therefore are rarely involved in state decision-making or able to hold power to account.⁹³⁵ MacGregor argues this may be due to the masculinist nature of climate discourses which

⁹³¹ *The State’s Legitimacy in Fragile Situations, Conflict and Fragility* (Paris: OECD Publishing, 2010), 23–24, <https://doi.org/10.1787/9789264083882-en>.

⁹³² *The State’s Legitimacy in Fragile Situations*, 23–24.

⁹³³ Susan E. Rice and Steward Patrick, “Index of State Weakness in the Developing World” (Brookings, February 2008), 31, <https://www.brookings.edu/research/index-of-state-weakness-in-the-developing-world/>.

⁹³⁴ OECD, *SIGI 2019 Global Report: Transforming Challenges into Opportunities*, Social Institutions and Gender Index (OECD, 2019), <https://doi.org/10.1787/bc56d212-en>.

⁹³⁵ Sherilyn MacGregor, “A Stranger Silence Still: The Need for Feminist Social Research on Climate Change,” *The Sociological Review* 57, no. s2 (2009): 124–40, <https://doi.org/10.1111/j.1467-954X.2010.01889.x>.

frequently centre on science and security.⁹³⁶ No doubt women’s alienation from the academic disciplines of science and technology (particularly climate science) has played a role in women’s lower engagement with climate security policymaking as both scholars and voters.⁹³⁷ When women are left out of climate security negotiations and policymaking, it invisibilizes their perspectives and needs, which may ultimately result in women experiencing increased climate *Susceptibility* and consequently holding a lower level of trust for their governments (Linkage 3.2.2.M). Conversely, a study by Asongu et al. shows that when women are politically empowered through women’s groups, in civil society, and through political debates, their vulnerability to climate change decreases, especially in small and fragile states.⁹³⁸ Including women in climate security policymaking may also play a role in re-balancing gendered power structures and further stabilize societies. Research by Chen and Hansen shows that empowered women in China helped effect their country’s ‘environmental turn’ and in the process, went some way to transforming gender norms about women’s involvement in public activities.⁹³⁹

Second, Bellina and colleagues write about output or performance legitimacy, which is determined by state performance, effectiveness, and quality of services and

⁹³⁶ MacGregor, “A Stranger Silence Still.”

⁹³⁷ Vincent Larivière et al., “Bibliometrics: Global Gender Disparities in Science,” *Nature* 504, no. 7479 (December 2013): 211–13, <https://doi.org/10.1038/504211a>; Miriam Gay-Antaki and Diana Liverman, “Climate for Women in Climate Science: Women Scientists and the Intergovernmental Panel on Climate Change,” *Proceedings of the National Academy of Sciences* 115, no. 9 (February 27, 2018): 2060–65, <https://doi.org/10.1073/pnas.1710271115>; Diana Liverman et al., “Survey of Gender Bias in the IPCC,” *Nature* 602, no. 7895 (February 2022): 30–32, <https://doi.org/10.1038/d41586-022-00208-1>; Ayesha Tandon, “Analysis: The Lack of Diversity in Climate-Science Research,” *Carbon Brief* (blog), October 5, 2021, <https://www.carbonbrief.org/analysis-the-lack-of-diversity-in-climate-science-research>.

⁹³⁸ Simplice Asongu, Omand O. Messono, and Keyanfe T. J. Guttemberg, “Women Political Empowerment and Vulnerability to Climate Change: Evidence from Developing Countries,” Working Paper (African Governance and Development Institute, 2021), <https://www.econstor.eu/handle/10419/244185>.

⁹³⁹ Lu Chen and Mette Halskov Hansen, “Gender and Power in China’s Environmental Turn: A Case Study of Three Women-Led Initiatives,” *Social Sciences* 11, no. 3 (February 2022): 97, <https://doi.org/10.3390/socsci11030097>.

goods.⁹⁴⁰ As discussed in several other sections of this study, climate change is expected to have widespread deleterious impacts on a state's ability to deliver public services. Examining just one area of impact—population growth—we see that climate change is expected to put increasing demands on the provision of basic services such as health care (medical, water, sanitation, and food); housing; *Education*; access to democratic elections and institutions; legal and justice services (including police services); civil registration; as well as safety net or social service programs, such as *Unemployment*, sickness, disability, widowhood, old age, and other livelihood securities.⁹⁴¹ At baseline, when *State Fragility* creates scarcity of public services, women are likely to face more obstacles than men to accessing basic services. This may be due to patriarchal and traditional beliefs about gender roles, masculinities, and femininities, as well as because of low literacy levels, lack of exposure to politics, policy spheres, and government planning processes, and low levels of representation in institutions.⁹⁴² During times of crisis, such as natural disasters caused by climate change, a fragile state's inability to perform its functions will intensify women's and girls' lack of access to social and legal protections, ability to exercise their rights, or freedom to use public services critical to their well-being (Linkage 3.2.2.N).⁹⁴³ Consequently, output illegitimacy is likely to further erode women's trust in their government, and could strengthen women's *anti-state grievances*.

A shared belief system is the third source of state legitimacy, which is based on a sense of political community that allows people to see the state (or other public authority)

⁹⁴⁰ *The State's Legitimacy in Fragile Situations*, 23–24.

⁹⁴¹ Lorraine Corner and Sarah Repucci, "A User's Guide to Measuring Gender-Sensitive Basic Service Delivery | United Nations Development Programme" (United Nations Development Programme, December 17, 2015), 4, <https://www.undp.org/publications/users-guide-measuring-gender-sensitive-basic-service-delivery>.

⁹⁴² Corner and Repucci, "A User's Guide to Measuring Gender-Sensitive Basic Service Delivery | United Nations Development Programme," 16.

⁹⁴³ Institute for Women's Policy Research, "Gender, Urbanization and Democratic Governance," 19.

as having rightful authority.⁹⁴⁴ There appears to be no literature on how shared belief systems about climate change might interact with gender. Nevertheless, looking at a study on adaptation to just one climate-induced crisis—drinking water scarcity—Thaker et al. examine the role collective efficacy (people’s shared beliefs about their group’s capabilities to accomplish collective tasks) plays in people’s *Susceptibility* to climate risks.⁹⁴⁵ Study results show individuals in communities with robust collective efficacy were more likely to participate in activities designed to ensure adequate water supplies.⁹⁴⁶ Belief systems about climate change, therefore, are likely to play a role in community *Susceptibility* to climate risks. One could argue that, as climate change intensifies, people’s beliefs about the need to address climate change will also shift, in both urgency and expressed need, as will the public’s trust in the government’s ability to address climate security concerns. Should there be a mismatch between belief systems of the public versus elites regarding solutions to climate insecurity, the public may lose faith in their government for failing to act appropriately or soon enough. Given all the ways climate insecurity is expected to impact women and men differently (already outlined in other GCS-Factors), this is an area in need of further exploration, especially given its potential impact on *State Fragility*.

As a subset of shared beliefs regarding state legitimacy, gender equality under the law is an important factor to consider within this *State Fragility* discussion. A large body of literature supports the view that equality under the law (and the rule of law), whether customary or statutory, is pivotal to building and maintaining state legitimacy,

⁹⁴⁴ *The State’s Legitimacy in Fragile Situations*, 23–24.

⁹⁴⁵ Jagadish Thaker et al., “The Role of Collective Efficacy in Climate Change Adaptation in India,” *Weather, Climate, and Society* 8, no. 1 (January 1, 2016): 21–34, <https://doi.org/10.1175/WCAS-D-14-00037.1>.

⁹⁴⁶ Thaker et al., “The Role of Collective Efficacy in Climate Change Adaptation in India.”

maintaining political stability, and resolving conflict.⁹⁴⁷ Equality amongst different ethnic, religious, cultural, and class groups is critical to shared belief systems, but crucially, so is gender equality under the law, though this is frequently left out of state legitimacy discussions.⁹⁴⁸ Through empirical analysis, Bowen et al. are able to enhance predictions of a state's level of stability and security by examining a measure of Inequity in Family Law in addition to other conventional markers such as level of democracy, literacy rate, or civilizational influence.⁹⁴⁹ Those systems that are male-dominated (whereby divorce, child custody, inheritance, and property laws favour men; polygamy and child marriage are legal; sexual aggression is permitted; and imbalanced family power structures based on gender are common) tend to normalize other inequities and violence, and structure economies based on parasitical and monopolistic rent-based systems (Linkage 3.2.2.O).⁹⁵⁰

A final source of state legitimacy, international legitimacy, stems from a recognition by external actors of a state's sovereignty, which has knock-on effects for internal legitimacy.⁹⁵¹ Gender justice and equality are often conditions for international recognition and legitimacy, and have been used as justification for international intervention.⁹⁵² International interventions may take the form of military action or humanitarian aid, which in and of itself may prove problematic for state legitimacy. Moen and Sundstøl Eriksen note that the long-standing presence of international actors in a state may undermine legitimacy by making the state accountable to external actors

⁹⁴⁷ Casey P. Hayden, "A Hierarchy of Needs in International Relations: (662112010-001)" (American Psychological Association, 2009), <https://doi.org/10.1037/e662112010-001>.

⁹⁴⁸ *The State's Legitimacy in Fragile Situations*, 27.

⁹⁴⁹ Donna Bowen, Valerie M. Hudson, and Perpetua Nielsen, "State Fragility and Structural Gender Inequality in Family Law: An Empirical Investigation," *Laws* 4, no. 4 (October 10, 2015): 654–72, <https://doi.org/10.3390/laws4040654>.

⁹⁵⁰ Bowen, Hudson, and Nielsen, "State Fragility and Structural Gender Inequality in Family Law."

⁹⁵¹ *The State's Legitimacy in Fragile Situations*, 23–24.

⁹⁵² True, "Bringing Back Gendered States."

(Linkage 3.2.2.P).⁹⁵³ Furthermore, Hoeffler suggests that if outside aid is too high, it may have a negative impact on state legitimacy.⁹⁵⁴

Looking more closely at international governing bodies, we see that transnational climate policies are increasingly tied to measures of gender equality as well.⁹⁵⁵ Several main international governance bodies now oversee international cooperation on the fight against climate change, including the IPCC, the UN Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol (KP), the World Bank, the Green Climate Fund, the UN Security Council (focused on climate security specifically), among others including numerous NGOs as well as funding agencies. Any combination of these international organizations may confer legitimacy on a state based on the adequacy of its climate response (either its greenhouse gas reductions or its climate adaptation efforts). As such, a lack of internal gender equality may diminish a state's international ranking, sidelining poorly performing states on the margins of the international community.⁹⁵⁶ Residents of poorly performing states may believe their governments illegitimate as a result of poor records on gender equality within international climate law, compounding already fragile conditions.

It's important to reiterate that gender transformative approaches to addressing involuntary population dislocations, state illegitimacy, and gender equality under the law

⁹⁵³ Eli Moen and Stein Sundstøl Eriksen, "Political Economy Analysis with a Legitimacy Twist: What Is It and Why Does It Matter?," *GSDRC*, 2010, 17, <https://gsdrc.org/document-library/political-economy-analysis-with-a-legitimacy-twist-what-is-it-and-why-does-it-matter/>.

⁹⁵⁴ Anke Hoeffler, "Growth, Aid and Policies in Countries Recovering from War," *OECD Development Co-Operation Working Papers*, OECD Development Co-Operation Working Papers (OECD Publishing, 2012), 10, <https://ideas.repec.org/p/oec/dcdaaa/2-en.html>.

⁹⁵⁵ "Gender and Climate Governance" (GSDRC, January 2017), <https://gsdrc.org/topic-guides/national-climate-change-governance/building-effective-institutions-to-implement-climate-policies/gender-and-climate-governance/>.

⁹⁵⁶ True, "Bringing Back Gendered States."

will require both state-level and household-level changes in understandings of gender norms and the gendering of structures and institutions. As Bowen states:

international efforts to increase female secondary and tertiary education rates, female participation in the police and the armed forces, and female participation in government, only go so far. The deeper level of inequitable family law must also be addressed for societies to escape from an endless cycle of state fragility.⁹⁵⁷

Yet, as True rightly points out, the very foundational ways in which patriarchal structures support state identities and interstate relations makes such changes incredibly disruptive and destabilizing.⁹⁵⁸ In many ways, therefore, improving state stability at the household level may result in temporary setbacks in security before a new level of stability can set in.

3.2.2.2. State Fragility and National/International Security

As climate-caused migration intensifies, it could have an impact on *National/International Security* along several pathways.⁹⁵⁹ First, there are multiple ways in which to look at how increased *State Fragility* may impact rates of *crime/violence/extremism*. To start, as a driver of migration, climate change is expected to increase rates of human trafficking and other organized criminal activity. Migrant workers and people seeking employment opportunities or safe havens following natural disasters are especially at risk, especially women and children according to Sheu et al.

⁹⁵⁷ Bowen, Hudson, and Nielsen, “State Fragility and Structural Gender Inequality in Family Law,” 668.

⁹⁵⁸ True, “Bringing Back Gendered States.”

⁹⁵⁹ For *National/International Security*, findings are organized first into one of four of Climate Diplomacy’s ‘Intermediary Mechanisms’ (crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions), and then further categorized according to (A) patterns of gender and crime, violence, and extremism (section 1.2.3.2); (B) patterns of gender and civic unrest participation (anti-state grievances) (section 1.2.3.3); and (C) patterns of gendered motivations for armed combat participation (particularly anti-state grievances, grievances between societal groups, and interstate tensions) (section 1.2.3.4).

(Linkage 3.2.2.Q).⁹⁶⁰ As already noted in 1.2.3.1, men are far more likely to spearhead organized criminal activity, especially when violence is involved, though connections between climate migration and human trafficking have not been studied.

Furthermore, through gender-selective migration, population sex ratios may change, and, as previously explored in section 3.1.2.2, imbalanced population sex ratios may have an impact on *crime/violence/extremism* rates. In particular, surplus males in densely populated urban areas may suggest the activation of the *SD-urban surplus males-state-based conflict Gender Equality-Security Mechanism* (Linkage 3.2.2.R). China and India are most at risk of population displacements that result in sex ratio imbalances given their strong son preference norms, regions with extreme exposure to climate change, and very dense populations—the two countries represent 38% of the world’s population.⁹⁶¹ [Noting again: as discussed in section 1.2.3.2, men are more likely than women to be involved in violent crimes and in leadership roles, however connections between gendered violent crime due to imbalanced population sex ratios and GCS-Factor *State Fragility* remains unstudied].

Importantly, Stanley explains that as states increasingly perceive migrants in hypermasculine terms as threats to national security, they will enact policies to impose greater border restrictions and constrain definitions for refugee status in order to exclude, detain, and expel such populations.⁹⁶² By othering ‘unpalatable’ populations in this way, states will force entire groups into criminalized categories to legitimize punishments and

⁹⁶⁰ Jessica C. Sheu et al., “Potential Impact of Climate Change on Human Trafficking: A Narrative Review,” *The Journal of Nervous and Mental Disease* 209, no. 5 (May 2021): 324–29, <https://doi.org/10.1097/NMD.0000000000001312>.

⁹⁶¹ Hudson and den Boer, “Missing Women and Bare Branches: Gender Balance and Conflict.”

⁹⁶² Elizabeth Stanley, “Climate Change and Migration: Managing Risks, Developing Hostilities,” in *Criminal Justice, Risk and the Revolt against Uncertainty*, ed. John Pratt and Jordan Anderson, Palgrave Studies in Risk, Crime and Society (Cham: Springer International Publishing, 2020), 217–44, https://doi.org/10.1007/978-3-030-37948-3_10.

expulsions, and in the process, disconnect large groups from lawful employment, public support, and legal standing.⁹⁶³ Importantly, such policies may have the effect of leaving migrants with few options other than criminal activity to survive (Linkage 3.2.2.S).

Several recent studies outline potential pathways connecting state illegitimacy and *anti-state grievances* or *grievances between societal groups*. As already discussed in 3.1.4.2, as a source of *State Fragility*, climate-driven population displacements can result in the mass movement of people into new regions where religious or ethnic traditions may be different. These population shifts may result in increased strain on employment opportunities, natural resources, or public services, such as government provision of *Poverty* reduction, public health, improved *Infrastructure*, affordable foodstuffs, and improved supply chains.⁹⁶⁴ Failures of local and national governments to deliver such services may have a negative impact on state legitimacy.⁹⁶⁵ Theoretically, rebel groups may seize upon sentiments of illegitimacy to increase recruitment for men to participate in sabotaging governmental relief efforts, though these claims have been contested. For instance, Petrova provides empirical evidence that flood hazards combined with loss of assets increase internal migration, leading to an increase in protest frequency in migrants' districts of destination.⁹⁶⁶ Likewise, Ash and Obradovich find that climatic stress increased internal migration in Syria from 2005 to 2010, which contributed to anti-

⁹⁶³ Stanley, "Climate Change and Migration."

⁹⁶⁴ Halvard Buhaug and Henrik Urdal, "An Urbanization Bomb? Population Growth and Social Disorder in Cities," *Global Environmental Change* 23, no. 1 (February 2013): 5, <https://doi.org/10.1016/j.gloenvcha.2012.10.016>.

⁹⁶⁵ Colin Walch, "Collaboration or Obstruction? Rebel Group Behavior during Natural Disaster Relief in the Philippines," *Political Geography*, Special Issue: Climate Change and Conflict, 43 (November 2014): 40–50, <https://doi.org/10.1016/j.polgeo.2014.09.007>; Rüttinger et al., "A New Climate for Peace: Taking Action on Climate and Fragility Risks, An Independent Report Commissioned by the G7 Members," 6.

⁹⁶⁶ Kristina Petrova, "Natural Hazards, Internal Migration and Protests in Bangladesh," *Journal of Peace Research* 58, no. 1 (January 2021): 33–49, <https://doi.org/10.1177/0022343320973741>.

government civil unrest.⁹⁶⁷ If this pathway is a route by which rates of state illegitimacy increase, such conditions may make recruitment into rebel or paramilitary groups much more likely. One hypothesis is that the *SD-urban surplus males-unemployment Gender Equality-Security Mechanism* may be at work and may increase a system's tendency toward *State Fragility* (Linkage 3.2.2.T), though again, research on gendered trends has not been developed.

Similarly, though context-specific and complex, massive shifts in population composition may also trigger or deepen cleavages between local and transplant populations and may lead to decreases in state legitimacy and increases in *anti-state grievances* and *grievances between societal groups*.⁹⁶⁸ Several studies hint at motivations for these grievances. Research by Adger et al. in Chattogram, Bangladesh finds:

environmental hazards represent an increasing source of perceived insecurity to migrant populations over time, with longer-term migrants perceiving greater insecurity than more recent arrivals, suggesting lack of upward social mobility in low-income slums. Ill-health, fear of eviction, and harassment and violence are key elements of how insecurity is experienced, and these are exacerbated by environmental hazards such as flooding.⁹⁶⁹

They conclude that these types of social stressors on *Human Security* create conditions in which social unrest becomes more likely.⁹⁷⁰ Furthermore, Ahsan et al. find that a change

⁹⁶⁷ Guy J. Abel et al., "Climate, Conflict and Forced Migration," *Global Environmental Change* 54 (January 2019): 239–49, <https://doi.org/10.1016/j.gloenvcha.2018.12.003>.

⁹⁶⁸ Jacob Olufemi Fatile, O. Samson Adejobi, and Aderonke Majekodunmi, "Climate Change, Communal Conflicts and Human Security in Nigeria," *Scottish Journal of Arts, Social Sciences and Scientific Studies* 2, no. 2 (August 2012): 32, https://www.researchgate.net/profile/Jones-Jaja/publication/263578936_Aminigo_IM_Egbezo_DEand_Jaja_JM_2012_The_Nigerian_University_System_and_the_Challenge_of_Ethnicity_Scotish_journal_of_Arts_Social_Science_and_Scientific_Studies_Vol2_Issue_11_3-13/links/02e7e53b43120ca600000000/Aminigo-IM-Egbezo-DEand-Jaja-JM-2012-The-Nigerian-University-System-and-the-Challenge-of-Ethnicity-Scottish-journal-of-Arts-Social-Science-and-Scientific-Studies-Vol2-Issue-11-3-13.pdf#page=26.

⁹⁶⁹ Adger et al., "Human Security of Urban Migrant Populations Affected by Length of Residence and Environmental Hazards."

⁹⁷⁰ Adger et al., "Human Security of Urban Migrant Populations Affected by Length of Residence and Environmental Hazards."

of social status in the aftermath of climate-caused migration leads to feelings of trauma and a sense of alienation.⁹⁷¹ According to Mkutu, these dynamics can be seen in many pastoralist communities such as those in Uganda with strong, socially prescribed manhood roles, such as paying a dowry for marriage. In these communities, young men may have to migrate out of their usual territories to engage in raiding as a way to generate an income or bride price resources. In such cases, women may encourage young men's raiding activities even providing weapons. Such practices inevitably increase group-based tensions and may result in violence and conflict.⁹⁷² These findings suggest motivations of *increase survival* or *avoid abuse* (typically women) and *pull of networks, exposure to violence/repression*, or *desire for revenge* (typically men) may pit migrants against advantaged groups or host residents against migrants, through more study is needed (Linkage 3.2.2.U).

Notably, however, Leenders finds the nature of climate migrants' networks have a determining impact on whether they are recruited into protest or conflict networks.⁹⁷³ Intensive social networks (dense intragroup connections, high trust, but few connections to other groups) may discourage easy recruitment, while extensive networks (dense intragroup connections and connections to other groups) increase integration more likely to facilitate recruitment.⁹⁷⁴ Those within intensive social networks may experience higher levels of alienation due to an inability to advocate for their needs.⁹⁷⁵ Further complicating the picture, Abel et al. show that droughts contribute to internal conflicts, which can

⁹⁷¹ Reazul Ahsan, "Climate Induced Migration: Lessons from Bangladesh," *The International Journal of Climate Change: Impacts and Responses* 5, no. 2 (2014): 1–16.

⁹⁷² Kennedy Agade Mkutu, "Uganda: Pastoral Conflict & Gender Relations," *Review of African Political Economy* 35, no. 116 (2008): 237–54, <https://doi.org/10.1080/03056240802194133>.

⁹⁷³ Reinoud Leenders, "Social Movement Theory and the Onset of the Popular Uprising in Syria," *Arab Studies Quarterly* 35, no. 3 (July 1, 2013), <https://doi.org/10.13169/arabstudquar.35.3.0273>.

⁹⁷⁴ Leenders, "Social Movement Theory and the Onset of the Popular Uprising in Syria."

⁹⁷⁵ Petrova, "Natural Hazards, Internal Migration and Protests in Bangladesh."

trigger migration, suggesting that the relationship between climate, migration, and conflict may be multi-directional and highly nuanced.⁹⁷⁶

Finally, there is a growing literature debating how climate change and mass migration may impact *State Fragility* to increase risks of *interstate tensions* (Linkage 3.2.2.V), though there are several recent meta-studies that contest these findings. Von Uexkull and Buhaug find that the empirical research has faced challenges with quantifying migrant flows and connecting such flows specifically to changes in the climate.⁹⁷⁷ Some empirical research is attempting to solve these challenges. Cattaneo and Foreman have shown that countries severely impacted by climate change may experience mass exodus of their people, and that destination countries for migrants may initiate conflict with sending countries as a result.⁹⁷⁸ Boas et al. also stress that the causes of migration are complex and usually not solely related to climate change, and that much more research is required to understand not *if* climate change will impact human movements, but *how* it may amplify existing conditions to increase the likelihood of migration, and how such flows of humans may impact state stability and conflict risks.⁹⁷⁹ Notably, Koubi et al. find that conflict perceptions, which are dependent on the type of

⁹⁷⁶ Abel et al., “Climate, Conflict and Forced Migration.”

⁹⁷⁷ von Uexkull and Buhaug, “Security Implications of Climate Change.”

⁹⁷⁸ Cristina Cattaneo and Timothy Foreman, “Climate Change, International Migration, and Interstate Conflicts” (SSRN Scholarly Paper, Rochester, NY, February 16, 2022), <https://doi.org/10.2139/ssrn.3995984>.

⁹⁷⁹ I. Boas et al., “Climate Migration Myths,” *Nature Climate Change* 9, no. 12 (2019): 901–3, <https://doi.org/10.1038/s41558-019-0633-3>; This finding is supported by the following study as well: Murat Bayar and Mustafa M. Aral, “An Analysis of Large-Scale Forced Migration in Africa,” *International Journal of Environmental Research and Public Health* 16, no. 21 (October 2019): 1–16, <https://doi.org/10.3390/ijerph16214210>.

climate change experienced, may contribute to conflictive behaviour.⁹⁸⁰ In particular, they argue and confirm with empirical analysis:

Sudden, short-term environmental incidents should affect most individuals equally and people are exposed to these environmental changes for only a short period of time. The likelihood of developing relative deprivation and grievances that will lead to an increased conflict perception is therefore low. In contrast, gradual, long-term environmental events, by fostering relative deprivations arising from differences in adaptive capacities and a longer time period of exposure, should induce heightened grievances and migrants should be likely to perceive conflicts at their new locations.⁹⁸¹

By implication, this research suggests that perceptions (in particular perceptions of inequalities between groups over longer periods of time) play an important role in understanding climate-migration and *interstate tensions* risks. Studying such perceptions may provide insights into whether *increase survival* (more typically women), *revenge* (typically men), the *pull of networks* (typically men), or other motivations would be most at play should conflicts arise (research is currently lacking).

⁹⁸⁰ Vally Koubi et al., “The Determinants of Environmental Migrants’ Conflict Perception,” *International Organization* 72, no. 4 (2018): 905–36, <https://doi.org/10.1017/S0020818318000231>.

⁹⁸¹ Koubi et al., “The Determinants of Environmental Migrants’ Conflict Perception,” 929.

3.2.2.3. Summary of Gender-Climate-Security and State Fragility

A summary visualizing Gender-Climate-Security connections to *State Fragility* can be found in Figure 23. A list of Diagnostic Questions in Table 63 offers practitioners and policymakers a way to operationalize this framework for specific scenario analysis.

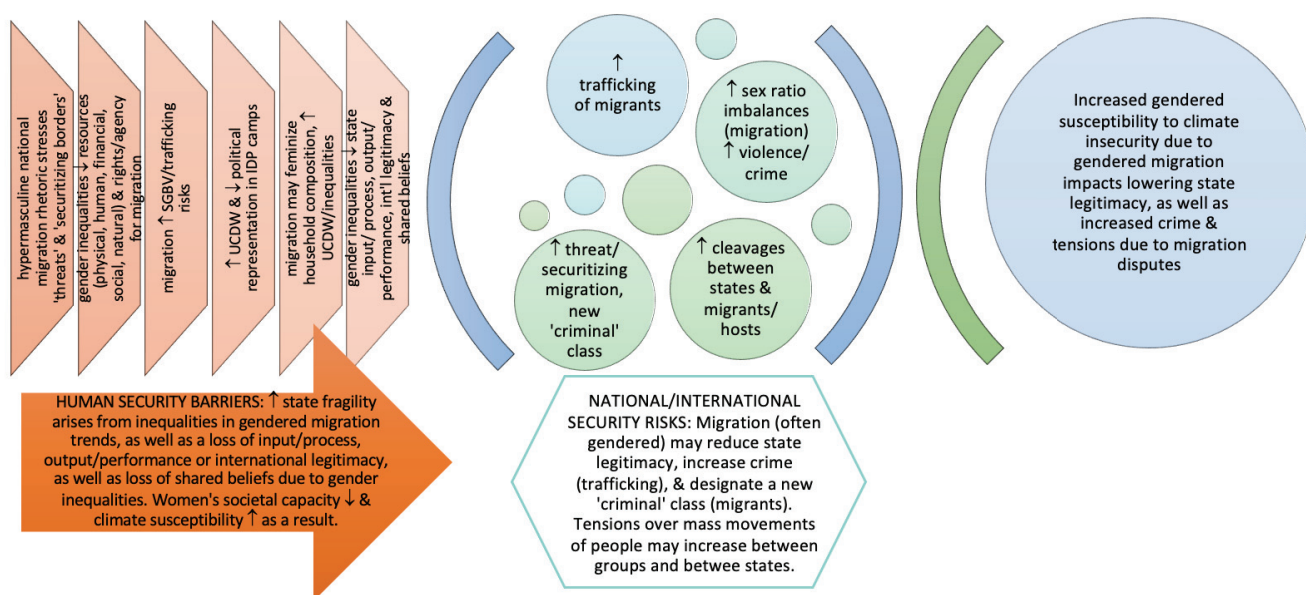


Figure 23. Gendered Climate Security Vulnerabilities in State Fragility.

A visual summary of the proposed framework findings regarding Gender-Climate-Security Links related to GCS-Factor State Fragility.

Chapter 4.

Conclusion

The impacts of climate change are already being felt around the world, and gender is a factor in virtually every aspect of it. As such, the proposed conceptual framework presented here offers the beginnings of a comprehensive method for uncovering the ways in which gender is talked about, imagined, governed, manifested, reinforced, and internalized in order to understand gender's role in climate security challenges, and how to develop gender transformative approaches to addressing such challenges.

Drawing from the lessons offered by interrogating several existing climate-security frameworks using various FPEcon/FPEcol, feminist, and WPS theories (among others), this study has proposed a framework to assess the gendered climate-security risks within particular local contexts. The proposed Gender-Climate-Security Framework comprises two primary components based on the analytical theory of several existing models: (1) scrutinize gendered *Human Security* and (2) interrogate how gender intersects with each of four types of *National/International Security* (*crime/violence/extremism, anti-state grievances, grievances between societal groups, and interstate tensions*). First, the practitioner or policymaker may use the framework to examine how women's context-specific *Human Security* conditions may help predict *National/International Security* risks (employing the rubric developed by Forsberg and Olsson section 1.2.3.1). Second, the framework provides a structure for exploring gender's role in *National/International Security* risks by applying three existing theories:

(2A) patterns in the intersection of gender and crime, localized violence, and extremism (applying theories from Campaniello and other scholars, section 1.2.3.2); (2B) patterns in the intersection of gender and civic unrest participation, particularly *anti-state grievances* (making use of theory by Rucht and Caren et al., section 1.2.3.3); and (2C) patterns of gendered motivations for participation in *anti-state grievances*, *grievances between societal groups*, and *interstate tensions* (using separate theories offered by Wood, Eggert, and Thomas and Wood, section 1.2.3.4).

In examining the gendered elements of *Human Security* and climate change, the existing research applicable to each GCS-Factor was analyzed and categorized within Forsberg and Olsson's *Gender Equality-Security Mechanisms* rubric. Findings for which *Gender Equality-Security Mechanisms* applied to which GCS-Factors are summarized in Table 46.

Table 46. Findings on Gender Equality-Security Mechanisms in the Gendered Climate-Security Lifecycle.

	Early Warning	Healthcare	WASH	Food Security	Recent Shocks	Long-Term Adaptation	Poverty	Life Expectancy	Education	Standard of Living	Unemployment	Socioeconomic Dev	Infrastructure	Corruption	State Fragility
Societal capacity	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SD-urban surplus males-state-based conflict								•			•		•		•
SD-surplus males-non-state conflict								•							•
SD-surplus males-unemployment							•				•	•		•	
Norms								•							

Summary of the GCS-Factors in which Forsberg and Olsson's Gender Equality-Security Mechanisms may be applicable within the Gender-Climate-Security Framework based on an analysis of existing research. Dotted cells indicate some evidence is available.

Clearly, there is strong evidence to support the theory that climate change is likely to impact women's *Human Security* due to the erosion of their *societal capacity* within every GCS-Factor in this framework. Consequently, policymakers and practitioners would be wise to consider how investments in women's *Education*, empowerment, networks, political representation, and other areas may strengthen communities and perhaps insulate them against climate-related instability.

While only a handful of studies supported the theory that climate-caused *socioeconomic development (SD)* mechanisms may impact both *Human Security* and *National/International Security* due to *Gender Equality-Security Mechanisms*, like *SD-urban surplus males-state-based conflict*, *SD-surplus males-non-state conflict*, or *SD-surplus males-unemployment*, the studies that propose some ways gender intersects with socioeconomic indicators offer important insights into how the presence of surplus males under various conditions may contribute to climate insecurity. As noted previously, there is also some evidence to connect *norms* with GCS-Factor *Education*. Additional research is needed to further explore the connections between gender, SD, and surplus males, particularly in GCS-Factors related to economic conditions.

Importantly, this study has highlighted that the root cause of many gendered climate insecurities is unequal power and gender relations. Any approach to tackling climate insecurities that ignores gendered hierarchies and the institutions that support them is likely to be inadequate, for as long as imbalanced power relations between women and men make women more vulnerable to climate threats, women's *Human Security* cannot be assured, and therefore their communities will remain at risk. Recommendations for gender transformative ways of approaching climate insecurities in each GCS-Factor have been offered throughout this study. These recommendations as well as the Diagnostic Questions (see the Appendix) offer a pathway for identifying how to transform unequal power and gender relations in order to help women become true agents for climate security.⁹⁸²

The *National/International Security* subsection of each GCS-Factor in this study also contained analysis regarding whether the gendered motivational mechanisms offered

⁹⁸² Arora-Jonsson, "Virtue and Vulnerability."

by Wood, Eggert, and Thomas and Wood were a useful framework for examining climate security scenarios. Those GCS-Factors that had studies connecting climate and security to gendered motivational mechanisms are identified in Table 47.

Table 47. Strong Research Findings on Gendered Motivations in the Gendered Climate-Security Lifecycle.

	Early Warning	Healthcare	WASH	Food Security	Recent Shocks	Long-Term Adaptation	Poverty	Life Expectancy	Education	Standard of Living	Unemployment	Socioeconomic Dev	Infrastructure	Corruption	State Fragility
Crime/Violence/Extremism			●					●			●	●			
Anti-state grievances		●	●		●	●		●	●	●	●	●			●
Grievances between societal groups		●	●	●	●	●		●		●	●	●			●
Interstate tensions			●					●			●	●			

Summary of the compelling research findings that define gendered motivations (various scholars) applicable to GCS-Factors and National/International Security risks within the proposed Gender-Climate-Security Framework. Dotted cells indicate good evidence is available.

Compelling links between gendered motivations and climate security risks were found in 25 of the 60 possible areas of linkage between gendered motivations and GCS-Factors. These findings support previous studies that have challenged essentialist perspectives based on women-as-victim/virtuous and men-as-villain binaries. Indeed, in many instances, evidence is available that suggests that there are many pathways by which women may be involved in climate-related violence or criminal activity that may increase national or international security risks. Likewise, men may fall victim to climate-caused

destructive forces due to community-defined masculine roles, thereby putting their community's security at risk. As such, more research on this topic could expand awareness of how culturally shaped gender norms and identities inform who engages in activity that may threaten *National/International Security*, and why. In particular, by seeking more information from women and men about their motivations for participating in *extremism, anti-state grievances, grievances between societal groups, and interstate tensions*, it may be possible to avoid essentializing men as violent and women as merely victims, virtuous saviours, or 'resources' in climate security, and instead view both women and men as capable of violence and conflict, as well as emphasize opportunities for women to act as active leaders in helping to address climate security challenges. Furthermore, understanding gendered motivations within a particular place and context may offer a fruitful way to assess a system's specific climate security weaknesses and areas where gender transformative initiatives could prove effective at stemming trends in increasing grievances or tensions.

This study also set out to examine the research related to women's and men's participation in *crime/violence/extremism*, and though there is some research offering a gendered perspective, in most cases, more research is required to understand whether gender is a factor that helps predict participation in crime and violence in particular (slightly more research has been completed on gendered extremism involvement). Likewise, in terms of women's and men's roles in climate-related *anti-state grievances*, some promising studies have made the connection between gender and violent or low-risk political protests. However, significant gaps remain regarding many GCS-Factors, and as such much more research is required to determine how women and men

participate in climate-related violent civic unrest. A summary of these findings can be found in Table 48.

Table 48. Strong Research Findings on Trends in Gendered Protest Participation Trends in the Gendered Climate-Security Lifecycle.

	Early Warning	Healthcare	WASH	Food Security	Recent Shocks	Long-Term Adaptation	Poverty	Life Expectancy	Education	Standard of Living	Unemployment	Socioeconomic Dev	Infrastructure	Corruption	State Fragility
Violent vs Property Crime/Violence/Extremism			•					•			•	•			
Violent vs Low-Risk Anti-State Grievances			•	•					•	•	•	•			

Summary of the well-defined research findings that describe gendered crime/violence/extremism or protest participation trends (by various scholars) applicable to GCS-Factors and National/International Security risks within the proposed Gender-Climate-Security Framework. Dotted cells indicate good evidence is available.

A common theme running throughout this proposed framework is the need to address gender inequalities that hinder *Human Security* and *National/International Security* at the local level, with particular contexts in mind.

Questions call for renewed attention to relations of social marginalization and exclusion that often fall out of sight as the locus of analysis shifts beyond the local scale. For instance, gender research and praxis, including FPE, tend to focus on everyday and quotidian issues at the intrahousehold and community levels, with gender equity issues reducing in visibility as one goes up in scale.⁹⁸³

Likewise, as noted in a recent report with stories from women in Mali, Colombia, and Yemen on their perspectives on climate, security, and gender:

⁹⁸³ Elias, Joshi, and Meinzen-Dick, "Restoration for Whom, by Whom?"

Given the specificities of climate security issues between and within regional and national contexts, research, policy and programming responses need to be informed by localized knowledge and experience. We need to hear from women as well as men from different places with different types of experiences, both because they have specific knowledge and because they have a right to be heard and their views taken into account.⁹⁸⁴

Recognizing that this framework needs testing and additional development, the goal has been to enable practitioners and policymakers to analyze, discuss, and then design context-specific approaches to meeting complex climate change risks using gender lenses at all levels of security. As such, the proposed framework (and specifically the Diagnostic Questions outlined for each GCS-Factor in the Appendix starting on page 380) may be a valuable way to engage in bottom-up evaluation processes of climate insecurity scenarios and gendered climate security outcomes, with participation from all stakeholders, particularly women, to understand the gendered barriers to achieving climate security for all.

According to mythical world views from many traditions, there is a World Turtle that rests on a larger turtle, and that larger turtle rests on an even larger turtle.⁹⁸⁵ In other words, earth is held up by turtles all the way down. Just like the World Turtle story, this study has attempted to uncover what role gender may play in supporting or mitigating climate-related crises and conflict by offering a conceptual Gender-Climate-Security Framework for assessing particular contexts. This study finds that there is ample evidence showing that women's diminished *Human Security* is likely to lead to fewer system-level resources and tools that support climate security and aid in preventing

⁹⁸⁴ “Women Speak: The Lived Nexus Between Climate, Gender and Security” (DCAF: Geneva Centre for Security Sector Governance, 2022), https://www.dcaf.ch/sites/default/files/publications/documents/WomenSpeak2022_EN_FINAL.pdf.

⁹⁸⁵ Edward Burnett Tylor, *Researches Into the Early History of Mankind and the Development Of Civilization* (J. Murray, 1870).

climate-related conflicts. This study also finds some emerging research to suggest considering gendered factors in national/international climate security threats would be beneficial for avoiding or resolving climate-related tensions. As such, if gender is given due consideration in climate security contexts, it is likely to provide useful insights that could guide policy and program implementation. In the end, this framework does not suggest there is a single best approach to assessing gendered climate security risks, but rather offers a diagnostic approach for engaging in bottom-up climate security assessments that are place-based and context-specific, and that contribute to the gender-disaggregated data gaps on this topic. A necessary next step is for policymakers and practitioners to test and evaluate this approach under various conditions.

Ultimately, in seeking to build a framework to understand how gender intersects with climate security concerns, this study finds that, like numerous turtles that form the foundation of a mythical earth, the impacts of climate change on *Human Security* and *National/International Security* cannot be fully understood without considering gender. Forming the top layers are studies that suggest gendered motivations may play a role in fueling various types of *National/International Security* involvement, including *crime and localized violence* and *anti-state grievances*, as well as *tensions between societal groups*, and *interstate tensions*. Below these layers, and most foundationally, climate change is likely to increase *Human (In)security* in highly gendered ways, and may even transform gender norms, in many cases leading to the destabilization of households and entire communities. Layer upon layer, from the top all the way to the bottom, gender is an important climate security consideration. In other words, it's gender all the way down the climate security lifecycle, and humanity would be reckless to ignore it.

Appendix 1.

Table 49. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Early Warning.

GCS-Factor Early Warning: Diagnostic Questions	References/Sources
Human Security	
<p>What gendered structures might result in women’s lesser access to electricity services, and therefore to early warning systems? For instance, do any of the following resource constraints reduce women’s access to electricity?</p> <ul style="list-style-type: none"> • Restricted access to banking services needed for electric contracts • Restricted access/control over economic resources • Lack of agency over time and work • Occupational segregation from men • Lack of affordable electricity services 	<ul style="list-style-type: none"> • Olufolahan Osunmuyiwa and Helene Ahlborg, “Inclusiveness by Design? Reviewing Sustainable Electricity Access and Entrepreneurship from a Gender Perspective,” <i>Energy Research & Social Science</i> 53 (July 2019): 145–58, https://doi.org/10.1016/j.erss.2019.03.010. • Ana Pueyo and Mar Maestre, “Linking Energy Access, Gender and Poverty: A Review of the Literature on Productive Uses of Energy,” <i>Energy Research & Social Science</i> 53 (July 2019): 170–81, https://doi.org/10.1016/j.erss.2019.02.019.
<p>What gendered structures limit women’s access to internet and mobile phone services and technology? In particular, how might the following reduce their access to technology resources:</p> <ul style="list-style-type: none"> • Lack of affordable mobile/internet services • Lack of reliable telecommunications services (low network quality or coverage) • Is gendered cyber violence prevalent? Is it policed? 	<ul style="list-style-type: none"> • Shireen Santosham and Dominica Lindsey, “Connected Women: Bridging the Gender Gap - Mobile Access and Usage in Low- and Middle-Income Countries” (GSMA, 2015), https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/Connected-Women-Gender-Gap.pdf. • “Gender and ICT,” Sida, 2015, 3, https://www.sida.se/en/publications/gender-and-ict.

GCS-Factor Early Warning: Diagnostic Questions	References/Sources
<p>Are women consulted in the design/installation of telecommunications systems (mobile phone and internet)?</p>	<ul style="list-style-type: none"> • Mallalieu, “Women, ICT and Emergency Telecommunications: Opportunities and Constraints” (International Telecommunication Union, 2020), https://reliefweb.int/sites/reliefweb.int/files/resources/Full-report.pdf.
<p>Does your community have programs that allow people to use digital systems to report acts of violence? Are women aware of online resources for reporting acts of violence?</p>	<ul style="list-style-type: none"> • “Unsafe in the City: The Everyday Experiences of Girls and Young Women” (Plan International Australia, July 2018), 8–9, https://www.plan.org.au/publications/unsafe-in-the-city-the-everyday-experiences-of-girls-and-young-women/.
<p>What gendered structures prevent women from learning how to use mobile phones, the internet, or electricity technology?</p>	<ul style="list-style-type: none"> • Ricardo Gomez, “Gender and Public Access Computing: An International Perspective,” <i>Electronic Journal on Information Systems in Developing Countries</i> 43, no. 5 (October 5, 2010): 1–17.
<p>Are information systems of communication (family/kin ties, community groups, task groups) used by women routinely included in early warning alerts?</p>	<ul style="list-style-type: none"> • Sarah Brown et al., “Gender Transformative Early Warning Systems: Experiences from Nepal and Peru” (Practical Action, March 2019), 20, https://floodresilience.net/resources/item/gender-transformative-early-warning-systems-experiences-from-nepal-and-peru/.
<p>Do gendered power structures within families prevent women from making decisions about how to respond to early warning alerts?</p>	<ul style="list-style-type: none"> • Sarah Brown et al., “Gender and Age Inequality of Disaster Risk” (Geneva: UN Women and UNICEF, December 2019), 29, https://www.preventionweb.net/files/72229_bls19312unwdisasterriskreport003web.pdf.
<p>Do gendered norms prevent women from leaving their homes without accompaniment of a male family member? Do women’s typical unpaid care responsibilities tie women to their homes? If</p>	<ul style="list-style-type: none"> • Brown et al., “Gender and Age Inequality of Disaster Risk,” 29.

GCS-Factor Early Warning: Diagnostic Questions	References/Sources
<p>yes to either of these questions, are programs in place to aid women in evacuating, along with other family members in the home?</p>	
<p>In what ways could early warning systems be re-designed to transform unequal gendered power structures?</p>	<ul style="list-style-type: none"> • Wendy Faulkner, “The Technology Question in Feminism: A View from Feminist Technology Studies,” <i>Women’s Studies International Forum</i> 24, no. 1 (January 1, 2001): 79–95, https://doi.org/10.1016/S0277-5395(00)00166-7. • Francesca Bray, “Gender and Technology,” <i>Annual Review of Anthropology</i> 36, no. 1 (2007): 37–53, https://doi.org/10.1146/annurev.anthro.36.081406.094328.

GCS-Factor Early Warning: Diagnostic Questions	References/Sources
National/International Security	
<p>Do local governments have policies and systems in place for alerting the public about impending climate-related extreme weather events?</p>	<ul style="list-style-type: none"> • Gareth Williams, “Study on Disaster Risk Reduction, Decentralization and Political Economy,” Global Assessment Report on Disaster Risk Reduction (ISDR & UNDP, March 2011), 23, https://www.preventionweb.net/english/hyogo/gar/2011/en/bgdocs/Williams_2011.pdf Clarification mine. • Zahidul Arefin Choudhury, “Politics of Natural Disaster: How Governments Maintain Legitimacy in the Wake of Major Disasters, 1990-2010” (University of Iowa, 2013), https://iro.uiowa.edu/discovery/delivery/01IOWA_INST:ResearchRepository/12730519020002771?l#13730789460002771; Dr Tobias Ide, “Natural Disasters and Political Violence: Assessing the Intersections” (University of Melbourne, 2019), 30, https://globalchallenges.org/wp-content/uploads/Ide-Natural-disasters-and-political-violence.pdf; Charles Cohen and Eric D. Werker, “The Political Economy of ‘Natural’ Disasters,” <i>Journal of Conflict Resolution</i> 52, no. 6 (December 1, 2008): 795–819, https://doi.org/10.1177/0022002708322157.

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Early Warning within a spatially explicit and time-specific setting.

Table 50. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Healthcare.

GCS-Factor Healthcare: Diagnostic Questions	References/Sources
Human Security	
Have local women’s unique health needs received equal research attention compared to that of men?	<ul style="list-style-type: none"> Iffath Unissa Syed, “Feminist Political Economy of Health: Current Perspectives and Future Directions,” <i>Healthcare</i> 9, no. 2 (February 22, 2021): 1–233, https://doi.org/10.3390/healthcare9020233.
Do any local healthcare laws, policies, and institutions restrict women from accessing care services or facilities?	<ul style="list-style-type: none"> Lori Heise et al., “Gender Inequality and Restrictive Gender Norms: Framing the Challenges to Health,” <i>The Lancet</i> 393, no. 10189 (June 15, 2019): 2440, https://doi.org/10.1016/S0140-6736(19)30652-X.
<p>Do women and men spend similar number of hours daily on unpaid care and domestic work? If not, how might disparities impinge on women’s ability to access care by:</p> <ul style="list-style-type: none"> Lowering earning capacity Modulating rates of poverty Reducing financial resources available for paying for healthcare services and food 	<ul style="list-style-type: none"> Graham S. Lowe, <i>Women, Paid/Unpaid Work, and Stress: New Directions for Research</i>, Background Paper (Canadian Advisory Council on the Status of Women) (Ottawa: Canadian Advisory Council on the Status of Women, 1989). Syed, “Feminist Political Economy of Health.”
Do people of all genders have equal access to cooling centres during heatwaves (especially pregnant women and the isolated elderly)?	<ul style="list-style-type: none"> Sam Sellers, “Gender and Climate Change: A Closer Look at Existing Evidence (2016)” (Women’s Environment and Development Organization, November 28, 2016), https://wedo.org/gender-and-climate-change-a-closer-look-at-existing-evidence-ggca/.

GCS-Factor Healthcare: Diagnostic Questions	References/Sources
<p>Are women/girls exposed to higher climate health risks based on their gendered roles or gender norms, such as:</p> <ul style="list-style-type: none"> • Domestic and care work that prevent evacuation (flood-related skin conditions) • Propriety norms that prevent women from learning to swim, removing heavy clothing, or seeking help from men (drowning) • Family sick care responsibilities (infectious disease exposure) • Early morning/late evening cooking (malaria exposure) • Water and fuel collection (SGBV exposure) 	
<p>Are men/boys exposed to higher climate health risks based on their gendered roles or gender norms, such as:</p> <ul style="list-style-type: none"> • Fire fighting (bush fire fatalities) • Working in urban environments (dengue fever) • Working in construction (heatwave exposure) • Dangerous rescue efforts (related fatalities) • Playing in local water sources (boys and schistosomiasis exposure) 	
<p>Do all adults have equal access to and control over food aid within the community? At the household level, do women/girls consume meals of equal number and size compared to men/boys?</p>	

GCS-Factor Healthcare: Diagnostic Questions	References/Sources
<p>Are there any unique, local mental health needs following a climate crisis that would increase rates of PTSD, acute stress disorder, depression, anxiety or suicidality among women (especially pregnant women) or men?</p>	
<p>Do pregnant persons in your community experience higher rates of infectious diseases (cholera, dengue fever, malaria, and schistosomiasis)?</p>	
<p>Are disaster shelters, migrant camps, and congregant facilities (bathrooms, washing facilities, breastfeeding, menstruation) designed to protect women from SGBV?</p>	
<p>Do DRR policies and plans ensure continuous provision of SRHR?</p>	<ul style="list-style-type: none"> • Mihoko Tanabe et al., “Tracking Humanitarian Funding for Reproductive Health: A Systematic Analysis of Health and Protection Proposals from 2002-2013,” <i>Conflict and Health</i>, Taking Stock of Reproductive Health in Humanitarian, 9, no. Suppl 1 (2015), https://doi.org/10.1186/1752-1505-9-S1-S2. • Jasmine Sprague Hepburn et al., “Review of the Inclusion of SRHR Interventions in Essential Packages of Health Services in Low- and Lower-Middle Income Countries,” <i>Sexual and Reproductive Health Matters</i> 29, no. 1 (January 1, 2021): 441–52, https://doi.org/10.1080/26410397.2021.1985826; • Evelyne Opondo, “Perspectives of an SRHR Advocate on the Impact of the Global Gag Rule in Kenya,” <i>Sexual and Reproductive Health Matters</i> 28, no. 3 (December 17, 2020): 64–67, https://doi.org/10.1080/26410397.2020.1795449. • “Sexual and Reproductive Health and Rights” (UN OHCHR

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	<p>Department for International Development, July 2004), https://www2.ohchr.org/english/issues/development/docs/rights_reproductive_health.pdf; Preethi Sundaram, “Sexual and Reproductive Health and Rights: The Key to Gender Equality and Women’s Empowerment” (The International Planned Parenthood Federation, 2020), https://www.ippf.org/sites/default/files/2020_gender_equality_report_web.pdf.</p> <ul style="list-style-type: none"> • Kathleen Mogelgaard and Kristen P. Patterson, “Building Resilience through Family Planning and Adaptation Finance,” Policy Brief (Washington, D.C.: Population Reference Bureau, March 2018), https://www.prb.org/wp-content/uploads/2018/03/18-057-Building-Resilience-Through-FP-and-Adaptation-Finance-2018-03-20-1555_FINAL.pdf. • Karen Hardee et al., “Family Planning and Resilience: Associations Found in a Population, Health, and Environment (PHE) Project in Western Tanzania,” <i>Population and Environment</i> 40, no. 2 (December 2018): 204–38, https://doi.org/10.1007/s11111-018-0310-x.
<p>Has a recent climate crisis increased rates of child marriage, thereby curtailing young girls’ climate resilience?</p>	<ul style="list-style-type: none"> • Christie McLeod, Heather Barr, and Katherina Rall, “Does Climate Change Increase the Risk of Child Marriage? A Look at What We Know--And What We Don’t--With Lessons from Bangladesh & Mozambique,” <i>Columbia Journal of Gender and Law</i> 38, no. 1 (2019): 115, https://doi.org/10.7916/cjgl.v38i1.4604. • Juliette Myers, “Untying the Knot: Exploring Early Marriage in Fragile States” (World Vision, March 2013), 24, https://reliefweb.int/sites/reliefweb.int/files/resources/UNTYI

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	<p>NG_THE_KNOT_-_March_2013.pdf.</p> <ul style="list-style-type: none"> • Claudia Felten-Biermann, “Gender and Natural Disaster: Sexualized Violence and the Tsunami,” <i>Development</i> 49, no. 3 (September 2006): 82–86, http://dx.doi.org/10.1057/palgrave.development.1100276; Myers, “Untying the Knot,” 25. • M. Laga et al., “To Stem HIV in Africa, Prevent Transmission to Young Women,” <i>AIDS</i> 15, no. 7 (May 2001): 931–34, https://doi.org/10.1097/00002030-200105040-00014; A. J. Nunn et al., “Risk Factors for HIV-1 Infection in Adults in a Rural Ugandan Community: A Population Study,” <i>AIDS</i> 8, no. 1 (January 1994): 81–86, https://doi.org/10.1097/00002030-199401000-00012. • R. Schmauz et al., “Multiple Infections in Cases of Cervical Cancer from a High-Incidence Area in Tropical Africa,” <i>International Journal of Cancer</i> 43, no. 5 (May 15, 1989): 805–9, https://doi.org/10.1002/ijc.2910430511; L. Kuhn et al., “Human Papillomavirus DNA Testing for Cervical Cancer Screening in Low-Resource Settings,” <i>Journal of the National Cancer Institute</i> 92, no. 10 (May 17, 2000): 818–25, https://doi.org/10.1093/jnci/92.10.818. • Nawal M. Nour, “Health Consequences of Child Marriage in Africa,” <i>Emerging Infectious Diseases</i> 12, no. 11 (November 2006): 1644–49, https://doi.org/10.3201/eid1211.060510. • Bassam Abu Hamad et al., “‘No One Should Be Terrified Like I Was!’ Exploring Drivers and Impacts of Child Marriage in Protracted Crises Among Palestinian and Syrian Refugees,” <i>The European Journal of Development Research</i> 33, no. 5 (October 1, 2021): 1209–31,

GCS-Factor Healthcare: Diagnostic Questions	References/Sources
	<p>https://doi.org/10.1057/s41287-021-00427-8.</p>
<p>Has local climate breakdown resulted in higher rates of SGBV?</p>	<ul style="list-style-type: none"> • Virginie Le Masson et al., “Violence Against Women and Girls and Resilience” (London: BRACED, 2019), 25, 36–50. • Erin C. Lentz, “Complicating Narratives of Women’s Food and Nutrition Insecurity: Domestic Violence in Rural Bangladesh,” <i>World Development</i> 104 (April 1, 2018): 271–80, https://doi.org/10.1016/j.worlddev.2017.11.019. • C. Nadine Wathen, Barb MacQuarrie, and Jennifer MacGregor, “Can Work Be Safe, When Home Isn’t?: Initial Findings of a Pan-Canadian Survey on Domestic Violence and the Workplace,” Western Education (Centre for Research & Education on Violence Against Women and Children, Canadian Labour Congress, 2015); Jennifer C.D. MacGregor, C. Nadine Wathen, and Barbara J. MacQuarrie, “Domestic Violence in the Canadian Workplace: Are Coworkers Aware?,” <i>Safety and Health at Work</i> 7, no. 3 (September 2016): 244–50, https://doi.org/10.1016/j.shaw.2016.01.003. • Konstantinos Tsirigotis and Joanna Łuczak, “Resilience in Women Who Experience Domestic Violence,” <i>Psychiatric Quarterly</i> 89, no. 1 (March 1, 2018): 201–11, https://doi.org/10.1007/s11126-017-9529-4.

GCS-Factor Healthcare: Diagnostic Questions	References/Sources
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Have rates of street crime or organized criminal activity increased following a climate-related health crisis? Have there been any gendered trends in participation in such activity?	<ul style="list-style-type: none"> • “Coronavirus: The Impact on Crime and Criminal Networks” (Global Initiative Against Transnational Organized Crime, March 2020), 4, https://globalinitiative.net/analysis/crime-contagion-impact-covid-crime/.
Has a climate-related health crisis led to an increase in medical-related fraudulent activity or peddling of counterfeit devices and cures? Have there been any gendered trends in participation in such activity?	<ul style="list-style-type: none"> • “Coronavirus,” 4.
Has the government response to a climate-related health crisis been sufficiently funded and effectively executed? If not, has there been a decrease in public confidence in government resulting in increased public protests or demonstrations? If so, are women and men participating at different rates?	<ul style="list-style-type: none"> • James R. Campbell, “Human Health Threats and Implications for Regional Security in Southeast Asia,” in <i>Human Security</i>, ed. Benny Teh Cheng Guan (Netherlands: Dordrecht: Springer, 2011), 173–91, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7121934/. • Tahsin Saadi Sedik and Rui Xu, “A Vicious Cycle: How Pandemics Lead to Economic Despair and Social Unrest,” in <i>IMF Working Paper</i> (International Monetary Fund, 2020), 5, https://www.imf.org/-/media/Files/Publications/WP/2020/English/wpiea2020216-print-pdf.ashx.
Have malign actors attempted to use the climate-related health crisis to increase public loss of confidence in government through misinformation or propaganda? If so, are these messages perpetuated by or targeted to women or men in particular?	<ul style="list-style-type: none"> • Martin Bricknell, Ramon PACHECO Pardo, and Christoph O Meyer, “How the COVID-19 Crisis Has Affected Security and Defence-Related Aspects of the EU” (European Parliament SEDE Committee, January 2021), 11, https://www.europarl.europa.eu/RegData/etudes/IDAN/2021/

GCS-Factor Healthcare: Diagnostic Questions	References/Sources
<p>Has a recent climate-caused health crisis resulted in economic or political instability? If so, have any groups engaged in scapegoating of other groups based on:</p> <ul style="list-style-type: none"> • Citizen/immigrant status • Ethnicity or race • Gender • Class 	<p>653623/EXPO_IDA(2021)653623_EN.pdf.</p> <ul style="list-style-type: none"> • Susan Peterson, “Epidemic Disease and National Security,” <i>Security Studies</i> 12, no. 2 (2002): 79. • Philip Barrett and Sophia Chen, “Social Repercussions of Pandemics,” in <i>IMF Working Paper</i> (International Monetary Fund, 2021), 4, https://www.imf.org/-/media/Files/Publications/WP/2021/English/wpiea2021021-print-pdf.ashx. • Melissa Pavlik, “A Great and Sudden Change: The Global Political Violence Landscape Before and After the COVID-19 Pandemic,” ACLED: Bringing Clarity to Crisis, August 4, 2020, https://acleddata.com/2020/08/04/a-great-and-sudden-change-the-global-political-violence-landscape-before-and-after-the-covid-19-pandemic/.
<p>Has a climate-caused pandemic increased infectious disease rates among military personnel, lowering military readiness and impacting regional balances of power?</p>	<ul style="list-style-type: none"> • Peterson, “Epidemic Disease and National Security,” 79.

GCS-Factor Healthcare: Diagnostic Questions	References/Sources
<p>Have international government bodies been distracted by large-scale health crises, resulting in disruptions to peace processes or increases in conflict?</p>	<ul style="list-style-type: none"> • Katariina Mustasilta, “The Effects of the COVID-19 Pandemic on Peace and Conflict,” <i>IPI Global Observatory</i> (blog), October 23, 2020, https://theglobalobservatory.org/2020/10/effects-of-covid-19-pandemic-on-peace-conflict/. • Katariina Mustasilta, “From Bad to Worse? The Impact(s) of Covid-19 on Conflict Dynamics,” <i>European Union Institute Security Studies</i> 13, no. 6 (June 11, 2020): 5.

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Healthcare within a spatially explicit and time-specific setting.

Table 51. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor WASH.

GCS-Factor WASH: Diagnostic Questions	References/Sources
Human Security	
<p>What is the baseline gender split in WASH-related household duties? Has climate breakdown increased the time required to complete WASH-related tasks for either women or men, girls or boys?</p>	<ul style="list-style-type: none"> • Susan B. Sorenson, Christiaan Morssink, and Paola Abril Campos, “Safe Access to Safe Water in Low Income Countries: Water Fetching in Current Times,” <i>Social Science & Medicine</i> 72, no. 9 (May 2011): 5, 9, https://doi.org/10.1016/j.socscimed.2011.03.010; Nyambod Emmanuel M. and Nazmul Huq, “Integrated Water Resources Management and Poverty Eradication –Policy Analysis of Bangladesh and Cameroon,” <i>Journal of Water Resource and Protection</i> 2, no. 3 (March 2010): 191–98, https://doi.org/10.4236/jwarp.2010.23021; Vica Marie Jelena Tomberge et al., “The Physical Burden of Water Carrying and Women’s Psychosocial Well-Being: Evidence from Rural Nepal,” <i>International Journal of Environmental Research and Public Health</i> 18, no. 15 (July 26, 2021): 7908, https://doi.org/10.3390/ijerph18157908. • Julie Fisher, Sue Cavill, and Brian Reed, “Mainstreaming Gender in the WASH Sector: Dilution or Distillation?,” <i>Gender & Development</i> 25, no. 2 (May 4, 2017): 185–204, https://doi.org/10.1080/13552074.2017.1331541.
<p>Has the time required/distance traveled for household collection of water increased due to climate breakdown? If so for whom? And have rates of SGBV increased as a result?</p>	<ul style="list-style-type: none"> • Jennifer A. Thompson, Fidelis Folifac, and Susan J. Gaskin, “Fetching Water in the Unholy Hours of the Night: The Impacts of a Water Crisis on Girls’ Sexual Health in Semi-Urban Cameroon,” <i>Girlhood Studies</i> 4, no. 2 (December 1, 2011): 111–29, https://doi.org/10.3167/ghs.2011.040208; Susan B. Sorenson, Christiaan Morssink, and Paola Abril Campos, “Safe Access to Safe Water in Low Income

GCS-Factor WASH: Diagnostic Questions	References/Sources
	<p>Countries: Water Fetching in Current Times,” <i>Social Science & Medicine</i> 72, no. 9 (May 2011): 1522–26, https://doi.org/10.1016/j.socscimed.2011.03.010.</p>
<p>Are gender-specific WASH facilities available? If not, have rates of SGBV due to lack of separate facilities increased (especially women looking for safe places to urinate, defecate, or wash? If not, have women adopted any maladaptive coping mechanisms (such as avoiding eating/drinking to limit the need to use the toilet, or waiting long periods before relieving themselves)? Has the lack of separate WASH facilities increased women’s mental distress? Or limited women’s participation in other community/leadership activities?</p>	<ul style="list-style-type: none"> • Marni Sommer et al., “Violence, Gender and WASH: Spurring on a , under-Documented and Sensitive Topic,” <i>Environment and Urbanization</i> 27, no. 1 (April 1, 2015): 105–16, https://doi.org/10.1177/0956247814564528; Goleen Samari, “Syrian Refugee Women’s Health in Lebanon, Turkey, and Jordan and Recommendations for Improved Practice,” <i>World Medical & Health Policy</i> 9, no. 2 (June 2017): 255–74, https://doi.org/10.1002/wmh3.231. • Siddhivinayak Hirve et al., “Psychosocial Stress Associated with Sanitation Practices: Experiences of Women in a Rural Community in India,” <i>Journal of Water, Sanitation and Hygiene for Development</i> 5, no. 1 (November 18, 2014): 115–26, https://doi.org/10.2166/washdev.2014.110.
<p>Have women reported increases in physical injuries due to heavier water loads because of climate change (neck pain, spinal injuries, spontaneous abortion, uterine prolapse, or increased caloric expenditures during pregnancy)?</p>	<ul style="list-style-type: none"> • Georgia L Kayser et al., “Water, Sanitation and Hygiene: Measuring Gender Equality and Empowerment,” <i>Bulletin of the World Health Organization</i> 97, no. 6 (June 1, 2019): 438–40, https://doi.org/10.2471/BLT.18.223305; Jo-Anne Lee Geere et al., “Is Water Carriage Associated with the Water Carrier’s Health? A Systematic Review of Quantitative and Qualitative Evidence,” <i>BMJ Global Health</i> 3, no. 3 (2018), https://doi.org/10.1136/bmjgh-2018-000764; Damian Hoy et al., “Low Back Pain in Rural Tibet,” <i>The Lancet</i> 361, no. 9353 (January 18, 2003): 225–26, https://doi.org/10.1016/S0140-6736(03)12254-4; Vica Marie Jelena Tomberge et al., “The Physical Burden of Water Carrying and Women’s

GCS-Factor WASH: Diagnostic Questions	References/Sources
	<p>Psychosocial Well-Being: Evidence from Rural Nepal,” <i>International Journal of Environmental Research and Public Health</i> 18, no. 15 (July 26, 2021): 7908, https://doi.org/10.3390/ijerph18157908.</p>
<p>Do local norms discourage women/girls from speaking about menstruation and other biological health issues common among women? If yes:</p> <ul style="list-style-type: none"> • Do such norms restrict women’s movements from the house during menstruation or pregnancy? • Have private gender-specific WASH facilities become less available or more difficult to access due to climate change? • Are such modesty/privacy norms preventing women/girls from seeking medical help or engaging in the economic/education opportunities? • Have concerns about modesty intensified to the point where women/girls are unable to participate in economic/educational activities? 	<ul style="list-style-type: none"> • Julie Hennegan et al., “Women’s and Girls’ Experiences of Menstruation in Low- and Middle-Income Countries: A Systematic Review and Qualitative Metasynthesis,” ed. Jenny E. Myers, <i>PLOS Medicine</i> 16, no. 5 (May 16, 2019), https://doi.org/10.1371/journal.pmed.1002803. • Bernadette P Resurrección et al., “Gender-Transformative Climate Change Adaptation: Advancing Social Equity” (Stockholm Environment Institute, 2019), 21, https://gca.org/wp-content/uploads/2020/12/GenderTransformativeClimateChangeAdaptation.pdf. • Yael Velleman et al., “From Joint Thinking to Joint Action: A Call to Action on Improving Water, Sanitation, and Hygiene for Maternal and Newborn Health,” <i>PLOS Medicine</i> 11, no. 12 (December 12, 2014), https://doi.org/10.1371/journal.pmed.1001771; Bethany A. Caruso et al., “Understanding and Defining Sanitation Insecurity: Women’s Gendered Experiences of Urination, Defecation and Menstruation in Rural Odisha, India,” <i>BMJ Global Health</i> 2, no. 4 (October 1, 2017): e000414, https://doi.org/10.1136/bmjgh-2017-000414.
<p>Do local gender norms dictate that women/girls are responsible for a higher percentage of WASH-related unpaid care and domestic</p>	<ul style="list-style-type: none"> • Edward G. J. Stevenson et al., “Water Insecurity in 3 Dimensions: An Anthropological Perspective on Water and Women’s Psychosocial Distress in Ethiopia,” <i>Social Science</i>

GCS-Factor WASH: Diagnostic Questions	References/Sources
<p>work (UCDW)? If yes:</p> <ul style="list-style-type: none"> • Has climate change increased the time required or effort needed to complete such tasks? • If so, has this increased the mental distress women/girls experience if they are not able to meet expected UCDW duties? 	<p><i>& Medicine</i> 75, no. 2 (July 1, 2012): 392–400, https://doi.org/10.1016/j.socscimed.2012.03.022.</p> <ul style="list-style-type: none"> • K. M. Rabiul Karim et al., “Water Development Projects and Marital Violence: Experiences from Rural Bangladesh,” <i>Health Care for Women International</i> 33, no. 3 (2012): 200–216, https://doi.org/10.1080/07399332.2011.603861. • Craig Hadley and Amber Wutich, “Experience-Based Measures of Food and Water Security: Biocultural Approaches to Grounded Measures of Insecurity,” <i>Human Organization</i> 68, no. 4 (2009): 451–60, https://doi.org/10.17730/humo.68.4.932w421317680w5x. • Florence Dery et al., “Understanding Empowerment in Water, Sanitation, and Hygiene (WASH): A Scoping Review,” <i>Journal of Water, Sanitation and Hygiene for Development</i> 10, no. 1 (December 3, 2019): 5–15, https://doi.org/10.2166/washdev.2019.077.
<p>Have any investments in local infrastructure been targeted at the care economy? Has the local government considered providing support for WASH-related work to allow women/girls greater access to economic/educational activity?</p>	<ul style="list-style-type: none"> • Lekha S. Chakraborty, “Deficient Public Infrastructure and Private Costs: Evidence for the Water Sector,” <i>Economic and Political Weekly</i> 43, no. 31 (2008): 69. • Ruth Oloo, “Addressing Unpaid Care and Domestic Work for a Gender-Equal and Inclusive Kenya” (Oxfam International, 2021), 3, https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621179/bn-we-care-ucdw-kenya-130421-en.pdf?sequence=1.

GCS-Factor WASH: Diagnostic Questions	References/Sources
National/International Security	
<p>How does water relate to local “embodied emotional geographies of places, peoples, and resources”, and therefore how are local culture and norms wrapped up in WASH-related identities and activities? Has climate change threatened any of these norms, identities, or activities? If so, have such changes increased levels of grievance or tensions between groups?</p>	<ul style="list-style-type: none"> • Farhana Sultana, “Suffering for Water, Suffering from Water: Emotional Geographies of Resource Access, Control and Conflict,” <i>Geoforum</i>, Themed Issue: New Feminist Political Ecologies, 42, no. 2 (March 1, 2011): 163–72, https://doi.org/10.1016/j.geoforum.2010.12.002.
<p>Have elites or rebel/criminal groups captured/secured water resources for private use or illegal distribution?</p> <ul style="list-style-type: none"> • Have hypermasculine messages been used to justify such capture/securitization? • Has water been distributed equitably among all genders? 	<ul style="list-style-type: none"> • Stephen Graham, Renu Desai, and Colin McFarlane, “Water Wars in Mumbai,” <i>Public Culture</i> 25, no. 1 (2013): 121,125, https://doi.org/10.1215/08992363-1890486. • Nausheen H. Anwar, Amiera Sawas, and Daanish Mustafa, “‘Without Water, There Is No Life’: Negotiating Everyday Risks and Gendered Insecurities in Karachi’s Informal Settlements,” <i>Urban Studies</i> 57, no. 6 (2019): 1320–37.
<p>Have water limitations increased emotional distress or declines in mental health among women or men or both? If so:</p> <ul style="list-style-type: none"> • Has talk of anti-state grievances or inter-group tensions increased as a result of emotional distress? • Have expressed anti-state grievances insinuated gendered allocation of WASH resources? • Have women indicated a willingness to transgress gender norms in order to protest water shortages? If so, has there been opposition or a backlash from men to such activity? 	<ul style="list-style-type: none"> • Anwar, Sawas, and Mustafa, “‘Without Water, There Is No Life.’” • Thuy Ngoc Vuong et al., “Household Water and Food Insecurity Negatively Impacts Self-Reported Physical and Mental Health in the Vietnamese Mekong Delta,” ed. Alison Parker, <i>PloS One</i> 17, no. 5 (2022), https://doi.org/10.1371/journal.pone.0267344. • Barbara Casciarri and Clément Deshayes, “‘We Are Thirsty!’: The Protest Movement for Water Access in Khartoum 2015-2016,” in <i>Social Waters. Embeddedness, Environment and Justice in Greater Khartoum</i>, 2020, 6.

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	<ul style="list-style-type: none"> • Elizabeth Peredo Beltrán, “Water, Privatization and Conflict: Women from the Cochabamba Valley” (Published by the Heinrich Böll Foundation, Berlin, April 2004), https://www.boell.de/sites/default/files/assets/boell.de/images/download_de/internationalepolitik/gip4.pdf. • Vivienne Bennett, “Gender, Class, and Water: Women and the Politics of Water Service in Monterrey, Mexico,” <i>Latin American Perspectives</i> 22, no. 2 (1995): 76–99.
<p>Has access to improved water systems declined or remained inadequate for community needs, resulting in water scarcity among some populations? If yes:</p> <ul style="list-style-type: none"> • Have tensions between groups been exacerbated by ethnic, religious, racial, tribal, or socioeconomic favouritism? 	<ul style="list-style-type: none"> • Clionadh Raleigh and Henrik Urdal, “Climate Change, Environmental Degradation and Armed Conflict,” <i>Political Geography, Climate Change and Conflict</i>, 26, no. 6 (August 2007): 674–94, https://doi.org/10.1016/j.polgeo.2007.06.005. • Adrien Detges, “Local Conditions of Drought-Related Violence in Sub-Saharan Africa: The Role of Road and Water Infrastructures,” <i>Journal of Peace Research</i> 53, no. 5 (September 2016): 696–710, https://doi.org/10.1177/0022343316651922. • Dorith Kool, Laura Birkman, and Bianca Torossian, “Interprovincial Water Challenges in Iraq: Initial Analysis of an Urgent and Under-Researched Crisis” (The Hague Centre for Strategic Studies, 2020), 2, https://hcss.nl/wp-content/uploads/attachments/WPS-WorkingPaper-InterprovincialWaterChallenges.pdf. • Graham, Desai, and McFarlane, “Water Wars in Mumbai,” 122,126. • Ole Magnus Theisen, “Blood and Soil? Scarcity and Internal Armed Conflict Revisited,” <i>Journal of Peace Research</i> 45, no. 6 (November 1, 2008): 801–18,

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	<p>https://doi.org/10.1177/0022343308096157; Ole Magnus Theisen, “Climate Clashes? Weather Variability, Land Pressure, and Organized in Kenya, 1989–2004,” <i>Journal of Peace Research</i> 49, no. 1 (January 1, 2012): 81–96, https://doi.org/10.1177/0022343311425842.</p>
<p>Have tensions between groups involved SGBV, including rape used as a weapon of war, revenge, intimidation, or fear?</p> <ul style="list-style-type: none"> • In particular, is SGBV used to gain access/control of WASH resources? • Do women face higher SGBV risks in journeys to collect water or use WASH facilities? 	<ul style="list-style-type: none"> • Maria Ines Fernandez Alvarez et al., <i>Gender and Sustainable Development: Case Studies</i>, ed. Smita Premchander and Christine Muller, Perspectives of the Swiss National Centre of Competence in Research (NCCR) North South, University of Bern 2 (Bern: NCCR North-South, 2006).
<p>Have climate-caused tensions over water resources resulted in violent rhetoric or actions between states? If yes:</p> <ul style="list-style-type: none"> • Have marine or land-based water systems been militarized/securitized along interstate borders? • Have tensions over cross-border water disputes resulted in armed clashes/violence? • Have changes in water control triggered shifts in regional power balances? • Is any party to interstate water tensions plagued by weak institutions (and therefore greater political instability)? 	<ul style="list-style-type: none"> • Enrico De Angelis et al., “Virtual Water Trade and Bilateral Conflicts,” <i>Advances in Water Resources</i> 110 (December 2017): 549–61, https://doi.org/10.1016/j.advwatres.2017.04.002. • Cody J Schmidt, Bomi K Lee, and Sara McLaughlin Mitchell, “Climate Bones of Contention: How Climate Variability Influences Territorial, Maritime, and River Interstate Conflicts,” <i>Journal of Peace Research</i> 58, no. 1 (January 1, 2021): 132–50, https://doi.org/10.1177/0022343320973738. • Gareth Price et al., <i>Attitudes to Water in South Asia</i> (London: Chatham House: The Royal Institute of International Affairs, 2014), 26. • “Water, Peace and Security,” accessed May 23, 2022, https://www.waterpeacesecurity.org/map. • Maryam Safi, “‘We Are Fighting a Water War’: The Character of the Upstream States and Post-Treaty

GCS-Factor WASH: Diagnostic Questions	References/Sources
	<p>Transboundary Water Conflict” (Master’s Thesis, Uppsala Universitet, 2021), https://www.diva-portal.org/smash/get/diva2:1565993/FULLTEXT01.pdf.</p> <ul style="list-style-type: none"> • Theodora-Ismene Gizelis and Amanda E. Wooden, “Water Resources, Institutions, & Intrastate Conflict,” <i>Political Geography</i> 29, no. 8 (November 1, 2010): 444–53, https://doi.org/10.1016/j.polgeo.2010.10.005.
<p>Are WASH-related interstate tensions viewed as opportunities for building peace? For instance:</p> <ul style="list-style-type: none"> • Has hydrodiplomacy been employed to reduce interstate tensions? • Has the concept of virtual water trade been used to reduce interstate tensions? 	<ul style="list-style-type: none"> • Manzoor Ahmad, Adil Khan, and Muhammad Imran Mehsud, “When States Go Thirsty: A Critical Analysis of Water War Thesis,” <i>Global Strategic and Securities Studies Review II</i>, no. I (December 30, 2017): 4, https://doi.org/10.31703/gsssr.2017(II-I).01. • David Katz, “Desalination and Hydrodiplomacy: Refreshening Transboundary Water Negotiations or Adding Salt to the Wounds?,” <i>Environmental Science & Policy</i> 116 (February 1, 2021): 171–80, https://doi.org/10.1016/j.envsci.2020.11.012.

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor WASH within a spatially explicit and time-specific setting.

Table 52. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Food Security.

GCS-Factor Food Security: Diagnostic Questions	References/Sources
Human Security	
<p>Historically, what has been the local gender balance of agricultural and/or fisheries/aquaculture workers? If yes:</p> <ul style="list-style-type: none"> • Have these gender balances changed recently due to climate change? • Have women and men generally produced different foodstuffs (i.e. different in terms of variety and/or whether it is used for local consumption)? <p>[Related to FAO’s <i>food availability</i>]</p>	<ul style="list-style-type: none"> • Fiorella Picchioni, Valentina Franchi, and Clara Park, “Feminist Approaches to Transforming Food Systems: A Roadmap towards a Socially Just Transition,” <i>Tropical Agriculture Association Journal</i> 42 (April 20, 2021): 18. • Carolyn Sachs, “Feminist Food Sovereignty: Crafting a New Vision,” vol. 58 (Presented at Proceedings of Food Sovereignty: A Critical Dialogue International Conference, Yale University: The Journal of Peasant Studies, 2013), 3–5, https://www.tni.org/files/download/58_sachs_2013_0.pdf. • Sophia Huyer, “Closing the Gender Gap in Agriculture,” <i>Gender, Technology and Development</i> 20, no. 2 (2016): 105–16, https://doi.org/10.1177/0971852416643872; Sachs, “Feminist Food Sovereignty: Crafting a New Vision.” • Nikita Gopal et al., “Expanding the Horizons for Women in Fisheries and Aquaculture,” <i>Gender, Technology and Development</i> 24, no. 1 (January 2, 2020): 1–9, https://doi.org/10.1080/09718524.2020.1736353.
<p>Have women lacked equal access to key resources needed for producing food?</p> <ul style="list-style-type: none"> • Land ownership/control (often due to discriminatory inheritance/property rights that limit women to small plots of land) 	<ul style="list-style-type: none"> • Gopal et al., “Expanding the Horizons for Women in Fisheries and Aquaculture.” • Christine Jost et al., “Understanding Gender Dimensions of Agriculture and Climate Change in Smallholder Farming Communities,” <i>Climate and Development</i> 8, no. 2 (March 14, 2016): 133–44,

GCS-Factor Food Security: Diagnostic Questions	References/Sources
<ul style="list-style-type: none"> • Financial systems (denying them access to loans) • Agriculture technology (such as irrigation infrastructure and other machinery that may be too heavy or culturally inappropriate for women to use) • Information/education • Extension support systems (often government- or NGO-run systems that provide information and tools) • (Farmworker) labour, resulting in significant power imbalances that often stunt women farmers' productivity <p>Has such lack of access/ownership intensified due to climate change?</p> <p>[Related to FAO's <i>food availability</i>]</p>	<p>https://doi.org/10.1080/17565529.2015.1050978.</p> <ul style="list-style-type: none"> • Amelia H. X. Goh, "A Literature Review of the Gender-Differentiated Impacts of Climate Change on Women's and Men's Assets and Well-Being in Developing Countries;," <i>CAPRI Working Papers</i>, CAPRI Working Papers (International Food Policy Research Institute (IFPRI), 2012), 6, https://ideas.repec.org/p/fpr/worpps/106.html.
<p>Have women been permitted to access climate smart agriculture/fishing educational opportunities, extension services, and other resources that would support their adaptation to climate change?</p> <p>[Related to FAO's <i>food availability</i>]</p>	<ul style="list-style-type: none"> • Jost et al., "Understanding Gender Dimensions of Agriculture and Climate Change in Smallholder Farming Communities."

GCS-Factor Food Security: Diagnostic Questions	References/Sources
<p>Has climate change triggered changes in land-based or marine-based food outputs? If yes:</p> <ul style="list-style-type: none"> • Are there local gender disparities in land access/ownership, hourly wages, unpaid care and domestic work (UCDW), and other social reproductive responsibilities? If yes: • Have large-scale farms been impacted by climate-related output shortages? If so, is there a gendered impact in terms of jobs lost, wages reduced, or employment security overall? • Have smallholder farms been impacted by climate-related output shortages? If so, is there a gendered impact of such changes, such as higher rates of bankruptcy/land forfeitures among women? <p>[Related to FAO's <i>food availability</i>]</p>	<ul style="list-style-type: none"> • Picchioni, Franchi, and Park, "Feminist Approaches to Transforming Food Systems," 18. • Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 3–4.
<p>Do women generally maintain/operate kitchen gardens and/or yard livestock? If yes:</p> <ul style="list-style-type: none"> • Do women generally have access to the tools and/or funds to effectively manage them? • Have households lost these assets in recent climate disasters? If so, have women been supported to replace/repair their lost assets? <p>[Related to FAO's <i>food access</i>]</p>	<ul style="list-style-type: none"> • Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 4–5. • Jenny Jungehülsing, "Women Who Go, Women Who Stay: Reactions to Climate Change" (Heinrich Böll Stiftung, November 2010), 46, https://www.boell.de/sites/default/files/assets/boell.de/images/download_de/MIGRACION_Gender_Climate_Mexico_Singles.pdf.

GCS-Factor Food Security: Diagnostic Questions	References/Sources
<p>Have shortfalls in food production had impacts on local food security? If so:</p> <ul style="list-style-type: none"> • Do both women and men possess the economic resources to purchase food during times of shortages from home gardens/livestock? • Has climate increased UCDW for either women or men? If so, has this unpaid work curtailed economic earnings and therefore increased food insecurity for either women or men? <p>[Related to FAO's <i>food access</i>]</p>	<ul style="list-style-type: none"> • Goh, "A Literature Review of the Gender-Differentiated Impacts of Climate Change on Women's and Men's Assets and Well-Being in Developing Countries," 9. • Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 5.
<p>Do gender norms suggest that women are not in direct control of household food use? If yes:</p> <ul style="list-style-type: none"> • Have climate-caused food shortages prompted women and girls to skip meals or eat less? • Has there been a change in women's and girls' overall nutritional health levels? • Have women shown an increase in disease contraction (such as malaria, diarrheal infections, and acute respiratory infections) due to food insecurity and meal skipping, especially following climate disasters? <p>[Related to FAO's <i>food utilization</i>]</p>	<ul style="list-style-type: none"> • Reetu Sogani, "Gender Approaches in Climate Compatible Development: Lessons from India" (Climate and Development Knowledge Network, 2016), https://www.preventionweb.net/publication/gender-approaches-climate-compatible-development-lessons-india; Sarah Fuhrman et al., "Left Out and Left Behind: Ignoring Women Will Prevent Us from Solving the Hunger Crisis," Policy Report (CARE International, August 2020), 2, https://www.care-international.org/files/files/LeftOutandLeftBehind.pdf; Hélène Botreau and Marc J Cohen, "Gender Inequalities and Food Insecurity: Ten Years after the Food Price Crisis, Why Are Women Farmers Still Food-Insecure?" (Oxfam, 2019), 8, https://policy-practice.oxfam.org/resources/gender-inequalities-and-food-insecurity-ten-years-after-the-food-price-crisis-w-620841/.

GCS-Factor Food Security: Diagnostic Questions	References/Sources
	<ul style="list-style-type: none"> • Julia A. Behrman, Elizabeth Bryan, and Amelia Goh, “Gender, Climate Change, and Group-Based Approaches to Adaptation,” in <i>Policy Note for: Enhancing Women’s Assets to Manage Risk under Climate Change: Potential for Group-Based Approaches</i>, ed. Claudia Ringler (Washington, D.C.: International Food Policy Institute, 2014), 3–8, https://www.ifpri.org/publication/gender-climate-change-and-group-based-approaches-adaptation.
<p>Are the increased nutritional needs of pregnant and breastfeeding women supported?</p> <ul style="list-style-type: none"> • Are pregnant women and nursing mothers experiencing higher rates of pregnancy complications (gestational diabetes, anemia, hypertension); poor infant health outcomes (low birth weight, increased birth defects, poor developmental outcomes); as well as lower quality of life and increased risks of depression and anxiety? • Is breastfeeding of children encouraged and supported by medical professionals? • Is climate-caused food insecurity creating barriers to breastfeeding? • Are budget shortfalls in local NGOs or governments shrinking women and baby educational programs, including breastfeeding support? <p>[Related to FAO’s <i>food utilization</i>]</p>	<ul style="list-style-type: none"> • Sachs, “Feminist Food Sovereignty: Crafting a New Vision,” 5. • Fiona H. McKay et al., “Systematic Review of Interventions Addressing Food Insecurity in Pregnant Women and New Mothers,” <i>Current Nutrition Reports</i> 11, no. 3 (May 2, 2022): 486–99, https://doi.org/10.1007/s13668-022-00418-z. • Bogdan Bazga, “Price Volatility, the Main Component of Food Security,” <i>Calitatea: Acces La Success</i> 13, no. 1 (April 2012): 7–15.

GCS-Factor Food Security: Diagnostic Questions	References/Sources
<p>Have the prices of basic foodstuffs changed in response to climate breakdown or climate disasters? If the prices have increased:</p> <ul style="list-style-type: none"> • Are families shifting income from food to other necessities? Has this impacted women or men differently? • Has food insecurity been on the rise among particular genders? Or women-headed households in particular? <p>[Related to FAO's <i>food stability</i>]</p>	<ul style="list-style-type: none"> • Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 6. • Hélène Botreau and Marc J. Cohen, "Chapter Two - Gender Inequality and Food Insecurity: A Dozen Years after the Food Price Crisis, Rural Women Still Bear the Brunt of Poverty and Hunger," in <i>Advances in Food Security and Sustainability</i>, ed. Marc J. Cohen, vol. 5 (Elsevier, 2020), 53–117, https://doi.org/10.1016/bs.af2s.2020.09.001.
<p>Have local policymakers and/or community leaders considered food sovereignty as a means of increasing food security and transforming gender norms?</p> <ul style="list-style-type: none"> • Is food viewed as a human right instead of as a commodity? • Could local laws improve farmers and farm workers' control over their food systems (production, culture, environments, markets)? • Is the community investing in seed saving and other small-scale, climate smart adaptations? • Are food sovereignty campaigns taking gender equality into consideration? 	<ul style="list-style-type: none"> • Sachs, "Feminist Food Sovereignty: Crafting a New Vision," 7. • Tricia Glazebrook, Samantha Noll, and Emmanuela Opoku, "Gender Matters: Climate Change, Gender Bias, and Women's Farming in the Global South and North," <i>Agriculture</i> 10, no. 7 (July 3, 2020), https://doi.org/10.3390/agriculture10070267.

GCS-Factor Food Security: Diagnostic Questions	References/Sources
National/International Security	
<p>Have food shortages evoked feelings of anger, frustration, or inequity in local people? If yes, have such feelings been triggered by any of the following ‘experiential domains,’ and are there gender differences in reactions?</p> <ul style="list-style-type: none"> • Uncertainty and worry: Worry about short-term food security • Inadequate quality: Not eating balanced meals / healthy, nutritious foods • Insufficient quantity: Ran out of food • Social unacceptability: Resorted to using socially unacceptable methods for acquiring food (such as stealing or having to work in gender-inappropriate roles) 	<ul style="list-style-type: none"> • Jennifer Coates et al., “Commonalities in the Experience of Household Food Insecurity across Cultures: What Are Measures Missing?,” <i>The Journal of Nutrition</i> 136, no. 5 (May 1, 2006): 1438S-1448S, https://doi.org/10.1093/jn/136.5.1438S.
<p>Has there been an increase in property or violent crime as a result of climate-fueled food scarcity? If so:</p> <ul style="list-style-type: none"> • Can gender differences in type and frequency of criminality be observed? • Is increased criminal activity connected to any of the four ‘experiential domains’? 	<ul style="list-style-type: none"> • Md Johirul Islam, “Does Hunger Affect Violent Crime? A Cross-Country Study of Developing Nations,” <i>SSRN Electronic Journal</i>, 2022, https://doi.org/10.2139/ssrn.4033213. • Anissia Klimova, “Low-Income Groups and the Effects of Climate Change on Malnutrition and Food Security,” in <i>Social Connectedness Fellowship 2017</i> (Samuel Centre for Social Connectedness, 2017), 24, https://www.socialconnectedness.org/wp-content/uploads/2019/10/Low-Income-Groups-and-the-Effects-of-Climate-Change-on-Malnutrition-and-Food-Security.pdf. • Jonathan Randel Caughron, “An Examination of Food

GCS-Factor Food Security: Diagnostic Questions	References/Sources
	<p>Insecurity and Its Impact on Violent Crime in American Communities” (PhD Dissertation, South Carolina, Clemson University, 2016), https://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=3571&context=all_theses.</p>
<p>Has food scarcity combined with economic uncertainty to trigger increases in anti-state grievances, grievances between societal groups, or interstate tensions? For instance:</p> <ul style="list-style-type: none"> • Have precipitation and temperature changes triggered lower agriculture productivity, and subsequently stunted economic growth? • Has low economic growth mass accelerated elite exit and deepened economic insecurity? • Have groups/individuals experienced tensions with others over food resources (croplands and food)? • Are local democratic institutions (constraints on the executive, separations of power, strong property rights, and rule of law) lacking? If so, national/international security threats may increase. • Are there gender differences in terms of motivation or involvement level within these types of tensions or conflicts? 	<ul style="list-style-type: none"> • John O’Loughlin et al., “Climate Variability and Conflict Risk in East Africa, 1990–2009,” <i>Proceedings of the National Academy of Sciences</i> 109, no. 45 (November 6, 2012): 18344–49, https://doi.org/10.1073/pnas.1205130109. • Vally Koubi et al., “Climate Variability, Economic Growth, and Civil Conflict,” <i>Journal of Peace Research</i> 49, no. 1 (January 31, 2012): 113–27, https://doi.org/10.1177/0022343311427173; Thomas F. Homer-Dixon, <i>Environment, Scarcity, and Violence</i> (Princeton University Press, 2010), 52, http://muse.jhu.edu/book/29798. • Mike Davis, <i>Late Victorian Holocausts: El Niño Famines and the Making of the Third World</i> (Verso Books, 2002); Brian Fagan, <i>Floods, Famines, and Emperors</i> (Basic Books, 2017), https://www.basicbooks.com/titles/brian-fagan/floods-famines-and-emperors/9780786727681/. • Ore Koren and Benjamin E. Bagozzi, “From Global to Local, Food Insecurity Is Associated with Contemporary Armed Conflicts,” <i>Food Security</i> 8, no. 5 (September 15, 2016): 999–1010, https://doi.org/10.1007/s12571-016-0610-x.

GCS-Factor Food Security: Diagnostic Questions	References/Sources
<p>Have placed-based power relationships been distorted due to climate-caused changes in food resources, leading to increases in anti-state grievances, grievances between societal groups, or interstate tensions? For instance:</p> <ul style="list-style-type: none"> • Have land grabbing and neoliberal economic policies created a disempowered landless peasant class? If so, these groups may see conflict/violence as the only recourse to resolve power imbalances. • Have corporations, government agencies, or elites been given control over food resources without consultation with indigenous peoples or residents, thereby engendering grievances between the community and governments/corporations/elites? If so, conflict and violence may appear the only way to resolve such grievances. • Are there gender differences in terms of motivation or involvement level within these types of tensions or conflicts? 	<ul style="list-style-type: none"> • O’Loughlin et al., “Climate Variability and Conflict Risk in East Africa, 1990–2009.” • Hanson Nyantakyi-Frimpong, “Hungry Farmers: A Political Ecology of Agriculture and Food Security in Northern Ghana” (London, Ontario, Canada, The University of Western Ontario, 2014), https://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=3708&context=etd. • Julia and Ben White, “Gendered Experiences of Dispossession: Oil Palm Expansion in a Dayak Hibun Community in West Kalimantan,” <i>The Journal of Peasant Studies</i> 39, no. 3–4 (May 28, 2012): 995–1016, https://doi.org/10.1080/03066150.2012.676544.
<p>Are women typically involved as policymakers, as decision-makers, or in peace negotiations regarding food security/scarcity?</p>	<ul style="list-style-type: none"> • Julia and White, “Gendered Experiences of Dispossession.”

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Food Security within a spatially explicit and time-specific setting.

Table 53. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Recent Shocks.

GCS-Factor Recent Shocks: Diagnostic Questions	References/Sources
Human Security	
<p>Following a recent climate-related shock, are there any individuals in your community that did not subsequently take adaptive or precautionary actions to mitigate future threats? If so, could one of the following reasons explain why?</p> <ul style="list-style-type: none"> • Reason 1: Individuals understand the risk but choose to accept it due to the fact that the perceived benefits of living close to the river appear to outweigh the potential negative impacts. • Reason 2: Individuals understand the risk but do not realize any agency for their own actions; the responsibility for action is transferred to someone else. • Reason 3: Individuals understand the risk but have few resources to affect the situation. <p>If either Reason 2 or 3 are common in your community, could gender inequalities be the cause?</p>	<ul style="list-style-type: none"> • James McCarthy et al., “Socio-Cultural Dimensions of Climate Change: Charting the Terrain,” <i>GeoJournal</i> 79, no. 6 (17 2014): 665–75, https://doi.org/10.1007/s10708-014-9546-x; Gisela Wachinger et al., “The Risk Perception Paradox-Implications for Governance and Communication of Natural Hazards: The Risk Perception Paradox,” <i>Risk Analysis</i> 33, no. 6 (June 2013): 1049–65, https://doi.org/10.1111/j.1539-6924.2012.01942.x. • Päivi Lujala, Haakon Lein, and Jan Ketil Rød, “Climate Change, Natural Hazards, and Risk Perception: The Role of Proximity and Personal Experience,” <i>Local Environment</i> 20, no. 4 (April 3, 2015): 489–509, https://doi.org/10.1080/13549839.2014.887666; Minerva Campos, Michael K. McCall, and Marc González-Puente, “Land-Users’ Perceptions and Adaptations to Climate Change in Mexico and Spain: Commonalities across Cultural and Geographical Contexts,” <i>Regional Environmental Change</i> 14, no. 2 (April 1, 2014): 811–23, https://doi.org/10.1007/s10113-013-0542-3; Aaron M. McCright, “The Effects of Gender on Climate Change Knowledge and Concern in the American Public,” <i>Population and Environment</i> 32, no. 1 (September 1, 2010): 66–87, https://doi.org/10.1007/s11111-010-0113-1; Päivi Lujala, Haakon Lein, and Jan Ketil Rød, “Climate

GCS-Factor Recent Shocks: Diagnostic Questions	References/Sources
	<p>Change, Natural Hazards, and Risk Perception: The Role of Proximity and Personal Experience,” <i>Local Environment</i> 20, no. 4 (April 3, 2015): 489–509, https://doi.org/10.1080/13549839.2014.887666; Leila Scannell and Robert Gifford, “Personally Relevant Climate Change: The Role of Place Attachment and Local Versus Global Message Framing in Engagement,” <i>Environment and Behavior</i> 45, no. 1 (January 2013): 60–85, https://doi.org/10.1177/0013916511421196.</p>
<p>Do any of the following conditions hinder increases in risk perception following a recent shock in either women or men?</p> <ul style="list-style-type: none"> • Lack of trust in authorities/experts or personal ability • False sense of security or a misjudgement of individual’s ability to cope due to low severity or rare events • Recent events are over-weighted compared to distant events that may have been more common or serious 	<ul style="list-style-type: none"> • Wachinger et al., “The Risk Perception Paradox-Implications for Governance and Communication of Natural Hazards.” • Elke U. Weber, Sharoni Shafir, and Ann-Renee Blais, “Predicting Risk Sensitivity in Humans and Lower Animals: Risk as Variance or Coefficient of Variation,” <i>Psychological Review</i> 111, no. 2 (2004): 430–45, https://doi.org/10.1037/0033-295X.111.2.430.
<p>In what ways do women’s relationships to the natural environment shape their knowledge and skills about social-environmental change, and therefore their understanding of recent shocks and subsequent risk perception and preparatory steps? For instance, how do the following considerations mediate women’s risk perceptions?</p> <ul style="list-style-type: none"> • Performance of UCDW, especially when in contact with natural resources (water, soil, wildlife) • Price of consumables • Lack of jobs • Local drug and alcohol addiction 	<ul style="list-style-type: none"> • Beth A. Bee, “Power, Perception, and Adaptation: Exploring Gender and Social–Environmental Risk Perception in Northern Guanajuato, Mexico,” <i>Geoforum</i> 69 (February 1, 2016): 71–80, https://doi.org/10.1016/j.geoforum.2015.12.006. • O. Swai, Jonathan Mbwambo, and F. Magayane, “Gender and Perception on Climate Change in Bahi and Kondoa Districts, Dodoma Region, Tanzania,” <i>Journal of African Studies and Development</i> 4, no. 9 (January 1, 2012): 218–31.

GCS-Factor Recent Shocks: Diagnostic Questions	References/Sources
<ul style="list-style-type: none"> • Migration of family members 	
<p>What gender inequalities form barriers to women taking preparatory steps against future threats?</p> <ul style="list-style-type: none"> • Lack of power on local water/resource management committees • Exclusion from owning assets, land or property • Decision-making power related to prioritization of needs following a shock 	<ul style="list-style-type: none"> • Bee, “Power, Perception, and Adaptation.”
<p>What intersectional risks might women face that make them more vulnerable to repeat exposure to climate-related shocks?</p> <ul style="list-style-type: none"> • Lack of assets lower socioeconomic standing • Being single/divorced/widowed • Having intersectional identities based on class, race, ethnicity, religion, or disability • Increased UCDW responsibilities <p>Those fitting any of these categories are more likely to face "long and unstable displacements; stigma during displacement; displacement to shelters; unsanitary shelters and hotels and/or cramped housing; loss of home, social support networks, and jobs, often simultaneously or in short order; unsafe living conditions; and uncertainty about disaster impacts to impeded coping and recovery” and suffer mental health consequences as a result</p>	<ul style="list-style-type: none"> • Lubna Mohammad, “Cumulative Disaster Exposure and Coping Capacity of Women and Their Children in Southeast Louisiana” (Master’s Thesis, Fort Collins, Colorado, Colorado State University, 2017), 135, https://mountainscholar.org/bitstream/handle/10217/183995/Mohammad_colostate_0053N_14367.pdf. • Raymond E. Wiest, Jane S.P. Mocellin, and D. Thandiwe Motsisi, “The Needs of Women in Disasters and Emergencies.” (Winnipeg, MB, Canada: Disaster Research Institute, The University of Manitoba, 1994), 23, https://www.jumpjet.info/Emergency-Preparedness/Protecting-Dependents/The_Needs_of_Women_in_Disasters_and_Emergencies.pdf. • Maureen Fordham, “Gender, Disaster and Development: The Necessity for Integration,” in <i>Natural Disaster and Development in a Globalizing World</i>, ed. Mark Pelling (London ; New York: Routledge, 2003), 57.

GCS-Factor Recent Shocks: Diagnostic Questions	References/Sources
<p>In what ways are local women’s physical health diminished as a result of repeat exposure to climate-related shocks?</p> <ul style="list-style-type: none"> • Cultural and social norms or economic barriers that prevent women from obtaining medical treatment for injuries or illnesses • Disruptions in SRHR services, placing women at higher risk of infections, premature births, malnutrition, unwanted pregnancies, and pregnancy losses 	<ul style="list-style-type: none"> • Nahid Rezwana, “Disasters and Access to Healthcare in the Coastal Region of Bangladesh: A Gendered Analysis” (PhD Dissertation, Durham University, 2016), 144, http://etheses.dur.ac.uk/11432/1/PhD_Thesis_-_Nahid_Rezwana.pdf?DDD14+. • Cheney Shreve, “Economic Efficiency or Gender Equality: Conceptualizing an Equitable ‘Social Framing’ for Economic Evaluations to Support Gender Equality in Disaster Risk- and Environmental-Management Decision-Making,” <i>Resources</i> 5, no. 3 (July 13, 2016): 25, https://doi.org/10.3390/resources5030025.
<p>In what ways have recent shocks stressed women’s and men’s self-esteem, socioeconomic status/position, employment, basic beliefs, relationships? As a result, have there been increases in any of the following mental health conditions (and if so, are there gendered patterns in such increases)?</p> <ul style="list-style-type: none"> • Anxiety • Sleep disturbances • Impaired personal relationships • PTSD (from acute or chronic trauma) • SGBV • Psychosomatic complaints 	<ul style="list-style-type: none"> • Wiest, Mocellin, and Motsisi, “The Needs of Women in Disasters and Emergencies.,” 22. • Belinda Agyapong et al., “Cumulative Trauma from Multiple Natural Disasters Increases Mental Health Burden on Residents of Fort McMurray,” <i>European Journal of Psychotraumatology</i> 13, no. 1 (May 17, 2022), https://doi.org/10.1080/20008198.2022.2059999; Claudia Catani et al., “Family Violence, War, and Natural Disasters: A Study of the Effect of Extreme Stress on Children’s Mental Health in Sri Lanka,” <i>BMC Psychiatry</i> 8, no. 1 (May 2, 2008): 33, https://doi.org/10.1186/1471-244X-8-33; Sangram Kishor Patel et al., “A Review of Disasters in Jammu and Kashmir, and Ladakh Region in India,” <i>International Journal of Population Studies</i> 6, no. 1 (August 17, 2020): 69–81,

GCS-Factor Recent Shocks: Diagnostic Questions	References/Sources
	<p>https://doi.org/10.18063/ijps.v6i1.1180; Nancy J Hauff, “What Are The Relationships Among Cumulative Trauma, Posttraumatic Stress Disorder, Sleep Quality, And Perinatal Outcomes In African American Women?” (Wayne State University, 2015), https://digitalcommons.wayne.edu/cgi/viewcontent.cgi?article=2135&context=oa_dissertations.</p>
<p>How have UCDW demands been impacted by a recent shock?</p> <ul style="list-style-type: none"> • Increased demands for care of sick/injured family members • Lowered bargaining power in negotiations for disaster relief • Diminished social safety net <p>Have increased UCDW demands on women impacted their mental health by raising levels of suicidal ideation, anxiety, desperation, and helplessness, or contributing to lack of sleep?</p>	<ul style="list-style-type: none"> • John Twigg, “Disaster Risk Reduction: Good Practice Review 9” (London, UK: Overseas Development Institute, 2015), 091, https://odihpn.org/wp-content/uploads/2011/06/GPR-9-web-string-1.pdf. • Tom Mitchell, Thomas Tanner, and Kattie Lussier, “‘We Know What We Need’: South Asian Women Speak out on Climate Change Adaptation,” Monographs and Working Papers (Institute of Development Studies and Action Aid International, November 2007), 10, https://actionaid.org/publications/2007/we-know-what-we-need-south-asian-women-speak-out-climate-change-adaptation. • Lennart Reifels et al., “Suicidality Risk and (Repeat) Disaster Exposure: Findings From a Nationally Representative Population Survey,” <i>Psychiatry</i> 81, no. 2 (May 2018): 158–72, https://doi.org/10.1080/00332747.2017.1385049.

GCS-Factor Recent Shocks: Diagnostic Questions	References/Sources
<p>Have disaster responses amplified existing gender equalities in the name of efficiency, time-management, or budget controls? Have any of the following approaches been used in recent shock responses?</p> <ul style="list-style-type: none"> • Targeting relief efforts through the head of household (typically men) with job, training, and recovery assistance • Expecting women to contribute to unpaid reconstruction projects (in addition to UCDW) • Barring women from leadership positions within DRR institutions 	<ul style="list-style-type: none"> • Fordham, “Gender, Disaster and Development: The Necessity for Integration,” 57. • Twigg, “Disaster Risk Reduction: Good Practice Review 9,” 091.
<p>Is the period following a recent shock, during which social constraints may be temporarily relaxed, viewed as opportunities to implement gender transformative programming by working to improve women’s confidence, skill levels, bargaining power, and involvement in decision-making?</p>	<ul style="list-style-type: none"> • Twigg, “Disaster Risk Reduction: Good Practice Review 9,” 092–095.

GCS-Factor Recent Shocks: Diagnostic Questions	References/Sources
National/International Security	
<p>Have crime rates increased locally following a recent shock (including gal fishing, human trafficking and illegal migration, drug trafficking, arms smuggling, etc.)?</p> <ul style="list-style-type: none"> • Have shocks occurred in regions that had been impacted by further shocks (perhaps impacted by blight or abandonment)? • Have recent shocks impacted social, politically, or economically important natural resources (such as marine environments) • Has the government offered an effective/efficient response or demonstrated incompetence or lack of compassion? 	<ul style="list-style-type: none"> • Susmita Roy, “The Impact of Natural Disasters on Violent Crime” (University of Canterbury, 2010), 38. • Andrew Curtis and Jacqueline Curtis, “Crime in Urban Post-Disaster Environments: A Methodological Framework from New Orleans,” <i>Urban Geography</i> 32, no. 4 (May 16, 2013): 488–510, https://doi.org/10.2747/0272-3638.32.4.488. • Antonios D. Mazaris and Basil Germond, “Bridging the Gap between Climate Change and Maritime Security: Towards a Comprehensive Framework for Planning,” <i>Science of The Total Environment</i> 635 (September 2018): 1076–80, https://doi.org/10.1016/j.scitotenv.2018.04.136. • Laura E. R. Peters, “Disasters as Ambivalent Multipliers: Influencing the Pathways from to Conflict Risk and Peace Through Disaster Risk Reduction,” <i>Journal of Peacebuilding & Development</i> 17, no. 2 (March 7, 2022), https://doi.org/10.1177/15423166221081516. • Wiest, Mocellin, and Motsisi, “The Needs of Women in Disasters and Emergencies.,” 23. • Kristina Petrova, “Floods, Communal Conflict and the Role of Local State Institutions in Sub-Saharan Africa,” <i>Political Geography</i> 92 (January 2022), https://doi.org/10.1016/j.polgeo.2021.102511.

GCS-Factor Recent Shocks: Diagnostic Questions	References/Sources
<p>Has disaster response demonstrated favouritism to one particular group based on race, ethnicity, religion, class, socioeconomic status, or gender?</p> <ul style="list-style-type: none"> • Has ‘othering’ rhetoric increased, stoking intragroup tensions and/or ties? • Has blame been assigned to the government or another societal group? <p>If so, have tensions between communities and governments or between societal groups erupted or intensified as a result?</p>	<ul style="list-style-type: none"> • Peters, “Disasters as Ambivalent Multipliers.”
<p>Do post-shock intrastate or interstate tensions follow the pattern suggested by Reinhardt and Lutmar:</p> <ul style="list-style-type: none"> • Disasters are endogenous social phenomena • Disasters and conflict are intertwined processes or cycles • Disasters and conflict are co-determined <p>If so, conflicts may be more likely to occur.</p>	<ul style="list-style-type: none"> • Philip Nel and Marjolein Righarts, “Natural Disasters and the Risk of Violent Civil Conflict,” <i>International Studies Quarterly</i> 52, no. 1 (March 2008): 159–85, https://doi.org/10.1111/j.1468-2478.2007.00495.x; Rafael Reuveny, “Economic Growth, Environmental Scarcity, and Conflict,” <i>Global Environmental Politics</i> 2, no. 1 (February 1, 2002): 83–110, https://doi.org/10.1162/152638002317261481; Gina Yannitell Reinhardt and Carmela Lutmar, “Disaster Diplomacy: The Intricate Links between and Conflict,” <i>Journal of Peace Research</i> 59, no. 1 (January 1, 2022): 3–11, https://doi.org/10.1177/00223433221074791.
<p>Have local populations approached conflicts as a trade-off between peaceful starvation or fighting to gain new territory to overcome the impacts of recent shocks? If so, the anticipation of future disasters can shift power balances, leading to increased likelihood of conflict</p>	<ul style="list-style-type: none"> • Muhammet A. Bas and Elena V. McLean, “Expecting the Unexpected: Risks and Conflict,” <i>Political Research Quarterly</i> 74, no. 2 (2021): 421–33, https://doi.org/10.1177/1065912920911204.

GCS-Factor Recent Shocks: Diagnostic Questions	References/Sources
in disaster-prone regions.	
Have attempts been made to view climate shocks as opportunities to pacify tensions and work toward peacebuilding? Good DRR design that is gender transformative can engage communities in post-disaster clean-up that improves relationships.	<ul style="list-style-type: none"> • Bas and McLean, “Expecting the Unexpected.”
Are women typically involved as policymakers, as decision-makers, or in peace negotiations regarding DRR?	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Recent Shocks within a spatially explicit and time-specific setting.

Table 54. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Long-Term Adaptation.

GCS-Factor Long-Term Adaptation: Diagnostic Questions	References/Sources
Human Security	
<p>What is the ability of local governments to purchase formal climate risk insurance, as well as other raise precautionary funds and/or plan to share the costs for relief, recovery, and reconstruction? Furthermore:</p> <ul style="list-style-type: none"> • What percentage of the community’s assets are covered by climate risk insurance? Who are the beneficiaries of that which is covered, and what is the gender balance of the beneficiaries of that insurance? • If precautionary funds have been raised, how are they allocated, and what is the gender balance of the beneficiaries of those funds? 	<ul style="list-style-type: none"> • Katherine Miles and Martina Wiedmaier-Pfister, “Applying a Gender Lens to Climate Risk Finance and Insurance” (Bonn, Germany: The InsuResilience Global Partnership Secretariat, November 2018), 7, https://www.insuresilience.org/wp-content/uploads/2018/11/insuresilience_applygender_181128_web.pdf. • Martina Wiedmaier-Pfister and Katherine Miles, “Mainstreaming Gender and Targeting Women in Inclusive Insurance: Perspectives and Emerging Lessons A Compendium of Technical Notes and Case Studies” (The Women and Inclusive Insurance Project, 2017), 2.
<p>When dislocated populations arrive in the community, are they able to settle in regions that are safe from future climate disasters? Or do they relocate to regions susceptible to climate hazards? What is the gender composition of the most vulnerable communities?</p>	<ul style="list-style-type: none"> • Stéphane Hallegatte et al., “From Poverty to Disaster and Back: A Review of the Literature,” <i>Economics of Disasters and Climate Change</i> 4, no. 1 (April 1, 2020): 223–47, https://doi.org/10.1007/s41885-020-00060-5.
<p>What are the pre-existing, gendered climate-related economic risks in the community? In particular:</p> <ul style="list-style-type: none"> • Do women or men tend to face higher poverty levels? Or lower socioeconomic participation? • What percentage of women in the community work in the 	<ul style="list-style-type: none"> • Miles and Wiedmaier-Pfister, “Applying a Gender Lens to Climate Risk Finance and Insurance,” 8–10.

GCS-Factor Long-Term Adaptation: Diagnostic Questions	References/Sources
<p>agriculture sector, and how vulnerable is that sector locally?</p> <ul style="list-style-type: none"> • Do women or men tend to own more of the household assets? • What was the gendered economic impact of the most recent climate-related extreme weather event (if applicable)? • What gender norms dictate how disaster aid is distributed following a climate crisis? • Does UCDW responsibilities or rates of SGBV increase following a crisis in the community, and how do such changes impact women economically? 	
<p>What different adaptation strategies are used by women and men following a climate crisis, such as:</p> <ul style="list-style-type: none"> • Pulling children out of school (if so, what is the gender make-up of those who stay and those who leave school?)? • Selling assets? • Taking out expensive loans? • Borrowing from informal networks? 	<ul style="list-style-type: none"> • Luke Power, “New Ways or Old Tricks? The World Bank’s Gender and Its Implications for Health,” <i>International Journal of Health Services</i> 50, no. 1 (2020): 21–31, https://doi.org/10.1177/0020731419885090. • Wiedmaier-Pfister and Miles, “Mainstreaming Gender and Targeting Women in Inclusive Insurance: Perspectives and Emerging Lessons A Compendium of Technical Notes and Case Studies,” 3.
<p>What barriers to local women face to purchasing CRI? For instance:</p> <ul style="list-style-type: none"> • Laws that restrict women’s access to financial services or ownership of property • Lack of awareness of insurance options for women • Lack of financial literacy • No financial services tailored to women’s unique needs: different risk profiles, unique protection needs, longer life expectancies, gender-specific health risks, fluctuating cash flows, fewer assets, restrictive ownership and inheritance laws, and higher rates of self-employment and participation in the 	<ul style="list-style-type: none"> • Wiedmaier-Pfister and Miles, “Mainstreaming Gender and Targeting Women in Inclusive Insurance: Perspectives and Emerging Lessons A Compendium of Technical Notes and Case Studies,” 3.

GCS-Factor Long-Term Adaptation: Diagnostic Questions	References/Sources
informal economy	
Which of the gender transformative climate risk insurance considerations could be implemented locally (see Table 21).	<ul style="list-style-type: none"> • Miles and Wiedmaier-Pfister, “Applying a Gender Lens to Climate Risk Finance and Insurance,” 21.
<p>Does local government engage in any of the following gender mainstreaming approaches to DRR planning and risk management?</p> <ul style="list-style-type: none"> • Is sex-disaggregated data collected before and after a crisis? • Are women in meaningfully included in leadership roles within DRR planning and implementation institutions (is tokenism avoided)? • Are women’s groups consulted in every aspect of DRR planning and implementation? • Do DRR plans mention SGBV and do they offer approaches for preventing and addressing it when it does occur? • Are specific plans in place for continuity of SRHR services for women and girls? 	<ul style="list-style-type: none"> • Sarah Bradshaw, “Gendered Rights in the Post-2015 Development and Disasters Agendas,” <i>IDS Bulletin</i> 46, no. 4 (2015): 63, https://doi.org/10.1111/1759-5436.12158. • Bina Agarwal, <i>Gender and Green Governance</i> (Oxford University Press, 2010), https://doi.org/10.1093/acprof:oso/9780199569687.001.0001.
When including women in DRR planning and implementation, is care taken not to increase women’s unpaid work burdens through remuneration or other forms of support?	<ul style="list-style-type: none"> • Melissa Leach, “Earth Mother Myths and Other Ecofeminist Fables: How a Strategic Notion Rose and Fell,” <i>Development and Change</i> 38, no. 1 (2007): 67–85, https://doi.org/10.1111/j.1467-7660.2007.00403.x.

GCS-Factor Long-Term Adaptation: Diagnostic Questions	References/Sources
National/International Security	
<p>What role does criminal activity play in the local economy, and are steps in place to avoid increased criminality following a climate crisis? For instance:</p> <ul style="list-style-type: none"> • Is the local government corrupt? Are laws and guidelines in place to prevent further corruption following a climate disaster? • What level of organized crime occurs locally? Are laws in place to prevent criminal capture of recovery efforts and funding? • How much rent-seeking activity takes place now? In what ways will increased elite capture be avoided in a crises scenario? • In what ways is the local criminal landscape gendered and how does a gender lens increase prevention methods? • Are women permitted to serve in meaningful government roles? <p>How is local criminality gendered and how might a gender lens aid in preventing crime and corruption?</p>	<ul style="list-style-type: none"> • Angelo Jonas Imperiale and Frank Vanclay, “Barriers to Enhancing Disaster Risk Reduction and Community Resilience: Evidence from the L’Aquila Disaster,” <i>Politics and Governance</i> 8, no. 4 (December 10, 2020): 236, https://doi.org/10.17645/pag.v8i4.3179.
<p>How strong are government institutions? What tensions exist between local groups along religious, ethnic, racial, socioeconomic, class, or gender lines that could be utilized by extremist groups to recruit members (especially in weak states)?</p>	<ul style="list-style-type: none"> • Katie Peters and Laura E R Peters, “Disaster Risk Reduction and Violent Conflict in Africa and Arab States: Implications for the Sendai Framework Priorities,” Briefing Note (London: Overseas Development Institute, October 2018), 2, https://cdn.odi.org/media/documents/12446.pdf.

GCS-Factor Long-Term Adaptation: Diagnostic Questions	References/Sources
<p>In a DRR scenario, how is the local government performing in terms of Maslowian drivers of anti-state grievances or grievances between societal groups?</p> <ul style="list-style-type: none"> • Capability: Resources available or easily mobilized (short-term versus long-term planning is important on this point) • Competence: Appropriate/efficient application of resources • Compassion: Concern/affect demonstrated for victims • Correctness: Fairness, honesty, transparency in applying resources • Credibility: Consistent/reliable disaster information • Anticipation: Pre-disaster mitigation and preparedness, or DRR <p>In what ways are public grievances gendered (along Maslowian lines), and how much the tendencies of women (who typically avoid violent demonstrations) and men (who are typically more likely to engage in protest violence) plan for future conflagrations?</p>	<ul style="list-style-type: none"> • Richard Stuart Olson and Vincent T. Gawronski, “From Disaster Event to Political Crisis: A ‘5C+A’ Framework for Analysis,” <i>International Studies Perspectives</i> 11, no. 3 (August 2010): 205–21, https://doi.org/10.1111/j.1528-3585.2010.00404.x. • “Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict” (Washington, D.C.: International Bank for Reconstruction and Development/The World Bank, 2018), 287, https://openknowledge.worldbank.org/handle/10986/28337. • Thea Hilhorst et al., “Strengthening Community Resilience in Conflict: Learnings from the Partners for Resilience Programme,” <i>ISS Working Paper Series/General Series</i> 666 (November 10, 2020): 15, https://repub.eur.nl/pub/131291/.

GCS-Factor Long-Term Adaptation: Diagnostic Questions	References/Sources
<p>Have local government institutions planned for disasters by developing public benefit programs and distributive aid policies? If so, in what ways do such plans reinforce gender/sociocultural inequalities and potentially contribute to grievances between societal groups or interstate tensions? For instance:</p> <ul style="list-style-type: none"> • Is compassion and correctness shown to all groups equally? • Are distributions of aid provided free of favouritism? • Do states offer reasonable, predictable, coordinated, equitable disbursement of funds with escalating risks? 	<ul style="list-style-type: none"> • “Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict,” 288.
<p>If disasters do lead to increased tensions and/or grievances, are women typically involved in peace negotiations?</p>	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Long-Term Adaptation within a spatially explicit and time-specific setting.

Table 55. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Poverty.

GCS-Factor Poverty: Diagnostic Questions	References/Sources
Human Security	
<p>What kinds of care and domestic work are unpaid in the local community, and who is responsible for these unpaid care and domestic work (UCDW) tasks?</p> <ul style="list-style-type: none"> • How do women’s and men’s wages, benefits, and other compensation compare to one another? • What is the difference in time spent between women and men, girls and boys on paid work? Unpaid work? 	<ul style="list-style-type: none"> • Stephane Hallegatte, Marianne Fay, and Edward B. Barbier, “Poverty and Climate Change: Introduction,” <i>Environment and Development Economics</i> 23, no. 3 (June 2018): 217–33, https://doi.org/10.1017/S1355770X18000141. • Jacqui True and Maria Tanyag, “Global Violence and Security from a Gendered Perspective,” in <i>Global Insecurity: Futures of Global Chaos and Governance</i>, ed. Anthony Burke and Rita Parker (London, UK: Palgrave Macmillan, 2017), 43–63, https://doi.org/10.1057/978-1-349-95145-1_3. • Naila Kabeer, “Gender, Poverty, and Inequality: A Brief History of Feminist Contributions in the Field of International Development,” <i>Gender and Development</i> 23, no. 2 (2015): 199, https://doi.org/10.1080/13552074.2015.1062300. • Sogani, “Gender Approaches in Climate Compatible Development,” 19.
<p>What kinds of UCDW tasks have increased in complexity or time required given climate change impacts, and who is responsible for these UCDW tasks?</p> <ul style="list-style-type: none"> • When a crisis strikes, how do expectations on women and men change relative to UCDW? • What types of UCDW tasks are added to women’s and men’s responsibilities following a crisis (tasks related to the 	<ul style="list-style-type: none"> • Hallegatte, Fay, and Barbier, “Poverty and Climate Change,” June 2018. • True and Tanyag, “Global Violence and Security from a Gendered Perspective.” • Kabeer, “Gender, Poverty, and Inequality,” 199. • Sogani, “Gender Approaches in Climate Compatible Development,” 19. • Max Lawson et al., “Time to Care: Unpaid and Underpaid Care

GCS-Factor Poverty: Diagnostic Questions	References/Sources
<p>replacement of public services (education, family health care, child care, etc.) or to produce high-cost items themselves (such as clothing or food))?</p> <ul style="list-style-type: none"> • How does the increase in UCDW impact women’s or men’s mental and physical health? 	<p>Work and the Global Inequality Crisis” (Oxford: Oxfam International, January 28, 2020), 41, https://www.oxfam.org/en/research/time-care.</p> <ul style="list-style-type: none"> • Caroline Moser, <i>The Impact of Recession and Adjustment Policies at the Micro-Level: Low Income Women and Their Households in Guayaquil, Ecuador</i>. (Santiago, Chile: UNICEF, 1988).
<p>What types of adaptive responses to women and men make to climate shocks?</p> <ul style="list-style-type: none"> • Possible adaptive responses: cutting back number of meals, purchasing less nutritious foods, foraging for wild food, borrowing from neighbours/money lenders, turning to wealthier patrons, letting illness go untreated, depletion of household stores, selling off smaller consumer durables, taking children out of school, temporary migration, selling off of producer assets, permanent migration, breakdown of the family unit • Is there an order to adaptive responses (i.e. are women expected to make the first adaptations or men?)? • How do their different responses impact their long-term resources and assets? 	<ul style="list-style-type: none"> • Kabeer, “Gender, Poverty, and Inequality,” 196.
<p>Have climate-based economic stressors prompted men to relocate in search of work?</p> <ul style="list-style-type: none"> • Has the percentage of men in your community increased? Have SGBV rates increased as a response? 	<ul style="list-style-type: none"> • Kabeer, “Gender, Poverty, and Inequality,” 193, 201. • K. L. Falb et al., “Gender Norms, Poverty and Armed Conflict in Côte D’Ivoire: Engaging Men in Women’s Social and Economic Empowerment Programming,” <i>Health Education Research</i> 29, no. 6 (December 2014): 1015–27, https://doi.org/10.1093/her/cyu058.

GCS-Factor Poverty: Diagnostic Questions	References/Sources
National/International Security	
<p>Has climate breakdown impoverished local/national government, and impeded their ability to provide basic physical security, government legitimacy, economic growth, and social welfare to the community? For instance:</p> <ul style="list-style-type: none"> • Direct costs in lost food systems, energy, and water infrastructure, and increased costs of policing. • Indirect costs such as economic losses, physical and physiological trauma, displacement, loss of education, and lost productivity. • If yes, have increased poverty levels resulted in an increase in crime and violence, which in turn may have further impoverished the community and its government? • Alternatively, has the inability of the government to provide services contributed to increased anti-state grievances, tensions between societal groups (perhaps along ethnic, religious, class, socioeconomic, or gender cleavages), or spillover of either into interstate tensions? 	<ul style="list-style-type: none"> • “Economic Value of Peace 2021” (Sydney: Institute for Economics & Peace, January 2021), 28, https://www.economicsandpeace.org/wp-content/uploads/2021/01/EVP-2021-web-1.pdf. • Jane L. Parpart, “Masculinity, Poverty and the ‘New Wars,’” in <i>The International Handbook of Gender and Poverty</i>, by Sylvia Chant (Edward Elgar Publishing, 2010), 675, https://doi.org/10.4337/9781849805162.00123. • Yandisa Sikweyiya and Sebenzile Nkosi, “Violent Protests and Gendered Identities,” <i>African Safety Promotion Journal</i> 15, no. 1 (June 2017): 1–7; Dieter Rucht, “The Spread of Protest Politics,” in <i>The Oxford Handbook of Political Behavior</i>, ed. Russel J. Dalton and Hans-Dieter Klingemann, 1st ed. (Oxford University Press, 2009), 708–23, https://www.researchgate.net/publication/289752882_The_Spread_of_Protest_Politics. • Susan E. Rice, “Poverty Breeds Insecurity,” in <i>Too Poor for Peace?</i>, ed. Lael Brainard and Derek Chollet, Global Poverty, Conflict, and Security in the 21st Century (Brookings Institution Press, 2007), 32, http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/10.7864/j.ctt6wpfc8.5.
<p>Have poverty levels among individual community members increased, and has there been a similar rise in crime? For instance:</p> <ul style="list-style-type: none"> • Have higher poverty rates on their own increased rates of 	<ul style="list-style-type: none"> • Robert Agnew, “Dire Forecast: A Theoretical Model of the Impact of Climate Change on Crime,” <i>Theoretical Criminology</i> 16, no. 1 (2012): 28. • Travis C. Pratt and Francis T. Cullen, “Assessing Macro-Level

GCS-Factor Poverty: Diagnostic Questions	References/Sources
<p>crime? If so, are the poorest most like to engage in crime? If so, what types of crimes and are there gendered patterns to the crime?</p> <ul style="list-style-type: none"> • Loss of livelihood or property combined with temperature increases, water scarcity, land degradation, or population displacements may increase crime levels. • Have inequality levels (measured by the GINI Index) between different groups increased? If so, have crime rates increased among those most impacted by inequality? • If yes to either, is there a gender difference? If so, does this information help provide targeted support to prevent further stability breakdown? 	<p>Predictors and Theories of Crime: A Meta-Analysis,” <i>Crime and Justice: A Review of Research</i> 32 (2005): 378.</p> <ul style="list-style-type: none"> • Stephane Hallegatte, Marianne Fay, and Edward B. Barbier, “Poverty and Climate Change: Introduction,” <i>Environment and Development Economics</i> 23, no. 3 (2018): 217–33, https://doi.org/10.1017/S1355770X18000141. • Muhammad Khalid Anser et al., “Dynamic Linkages between Poverty, Inequality, Crime, and Social Expenditures in a Panel of 16 Countries: Two-Step GMM Estimates,” <i>Journal of Economic Structures</i> 9, no. 1 (June 5, 2020): 1–25, https://doi.org/10.1186/s40008-020-00220-6.
<p>Do government benefit programs or local loan programs offer services equally to all genders, without disadvantaging any? Men in particular may experience shame if they cannot access financial services or public benefits.</p>	<ul style="list-style-type: none"> • Sogani, “Gender Approaches in Climate Compatible Development,” 23.
<p>Are malign actors using increased poverty rates to stoke grievances between societal groups or against the government?</p> <ul style="list-style-type: none"> • In particular, does recruitment messaging centre on gendered notions of economic stability and socioeconomic status? • Have such recruitment campaigns increased the number of individuals joining rebel or extremist groups? If so, what is the gender balance of those joining? Related: is the flow of unemployed young men a ‘permanent source of recruitment?’ • Have malign actors encourage violent unrest or demonstrations? If so, what is the gender balance of those who 	<ul style="list-style-type: none"> • Sikweyiya and Nkosi, “Violent Protests and Gendered Identities”; Rucht, “The Spread of Protest Politics.” • Sogani, “Gender Approaches in Climate Compatible Development,” 23. • Marshall B. Burke et al., “Climate Robustly Linked to African Civil War,” <i>Proceedings of the National Academy of Sciences of the United States of America</i> 107, no. 51 (October 30, 2010), https://doi.org/10.1073/pnas.1014879107. • Parpart, “Masculinity, Poverty and the ‘New Wars,’” 675.

GCS-Factor Poverty: Diagnostic Questions	References/Sources
participate?	
Are women typically involved as policymakers, as decision-makers, or in peace negotiations regarding poverty and economic decline? If not, how might increasing women's involvement lower the chances that increased poverty leads to political instability?	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Poverty within a spatially explicit and time-specific setting.

Table 56. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Life Expectancy.

GCS-Factor Life Expectancy: Diagnostic Questions	References/Sources
Human Security	
<p>Does the local community have gendered power imbalances that value masculine bodies and work, and devalue feminine bodies and work? For instance, such power imbalances may result in:</p> <ul style="list-style-type: none"> • Denial of access to reproductive choice • Affordable public benefits such as health care and safety-net programs • Lower or zero compensation for labour • Barriers to accessing safe havens • Restrictions on movement, dress, and conduct in public 	<ul style="list-style-type: none"> • Sophie Harman, “Ebola, Gender and Conspicuously Invisible Women in Global Health Governance,” <i>Third World Quarterly</i> 37, no. 3 (March 10, 2016): 524–41, https://doi.org/10.1080/01436597.2015.1108827; Shirin Rai, Catherine Hoskyns, and Dania Thomas, “Depletion and Social Reproduction,” in <i>Centre for the Study of Globalisation and Regionalisation</i> (University of Warwick, 2010), 21. • Carroll L Estes, “Women’s Rights, Women’s Status, Women’s Resistance in the Age of Trump,” <i>Generations: Journal of the American Society of Ageing</i> 41, no. 4 (2018): 36–44. • Institute for Women’s Policy Research, “Gender, Urbanization and Democratic Governance,” White Paper (New York: Commissioned by the National Democratic Institute), 19, accessed February 14, 2022, https://www.ndi.org/sites/default/files/Gender%20Urbanization%20and%20Local%20Governance%20White%20Paper.pdf.
<p>Following a climate disaster, what gender norms have increased demands for women’s social reproductive labour (UCDW)? Has sufficient support for women’s health been made available? For instance:</p> <ul style="list-style-type: none"> • Has survival of the family/community/state through the crisis become contingent on women’s willingness to sacrifice, 	<ul style="list-style-type: none"> • Gorana Mlinarević et al., “A Feminist Perspective on Post-Conflict Restructuring and Recovery: The Study of Bosnia and Herzegovina” (Women’s International League for Peace & Freedom, 2017), 9, https://wilpf.org/wp-content/uploads/2017/08/Feminist-political-economy-ENG-FINAL.pdf. • Deepta Chopra and Caroline Sweetman, “Introduction to

GCS-Factor Life Expectancy: Diagnostic Questions	References/Sources
<p>subordinating her own health needs for others?</p> <ul style="list-style-type: none"> • Are healthcare services for women scarcer and more restrictive, just at a time when heightened UCDW responsibilities further wear down women's bodies? • Have women been asked to be directly involved in reconstruction/recovery projects, (with or without compensation?), thereby adding to bodily depletion with inadequate support for personal health? • Have mortality rates and long-term health deterioration increased among women? 	<p>Gender, Development and Care,” <i>Gender & Development</i> 22, no. 3 (October 29, 2014): 409–21, https://doi.org/10.1080/13552074.2014.975486; Barbara Sutton, <i>Bodies in Crisis: Culture, Violence, and Women's Resistance in Neoliberal Argentina</i> (New Brunswick: Rutgers University Press, 2010), http://muse.jhu.edu/book/13608.</p> <ul style="list-style-type: none"> • Juanita Elias and Shirin Rai, “The Everyday Gendered Political Economy of Violence,” <i>Politics & Gender</i> 11, no. 2 (June 2015): 424–29, https://doi.org/10.1017/S1743923X15000148. • Maria Tanyag, “Depleting Fragile Bodies: The Political Economy of Sexual and Reproductive Health in Crisis Situations,” <i>Review of International Studies</i> 44, no. 4 (June 2018): 654–71, https://doi.org/10.1017/S0260210518000128. • <u>Sophie Harman</u>, “<u>Ebola, Gender and Conspicuously Invisible Women in Global Health Governance</u>,” <i>Third World Quarterly</i> 37, no. 3 (March 3, 2016): 524–41, https://doi.org/10.1080/01436597.2015.1108827; <u>Henrik Urdal and Chi Primus Che</u>, “<u>War and Gender Inequalities in Health: The Impact of Armed Conflict on Fertility and Maternal Mortality</u>,” <i>International Interactions</i> 39, no. 4 (September 2013): 489–510, https://doi.org/10.1080/03050629.2013.805133.
<p>Have son practices decreased the life expectancies of girl fetuses and girl children? For instance:</p> <ul style="list-style-type: none"> • Have rates of sex selective abortion increased in response to climate crises? • Do parents routinely use son preference practices that lower girl children's health, such as offering less breastmilk, lower quality food, lower vitamin supplementation, and fewer vaccinations? 	<ul style="list-style-type: none"> • Jaehyun Jung, “Weather Shocks and Sex-Selective Abortion: Evidence from Rural Vietnam” (Korean Economic Association Proceedings, New York: Columbia University, 2017), 41, http://kea.ne.kr/conference-2017/download/S4-5-2_Jaehyun%20Jung.pdf; “Selective Abortion of Girls Appears Common throughout India” (Harvard T.H. Chan School of Public Health, May 18, 2011), https://www.hsph.harvard.edu/news/hsph-in-the-news/abortion-

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<ul style="list-style-type: none"> • Have there been measurable differences in girls' health outcomes compared to boys? • Have 'excess female under-5 mortality' rates increased as a result of a climate crisis? • Can you measure a change in population sex ratios in childhood age brackets? 	<p>girls-india-subramanian/.</p> <ul style="list-style-type: none"> • Valerie M. Hudson and Andrea M. den Boer, "Missing Women and Bare Branches: Gender Balance and Conflict," Commentary, <i>Population and Conflict: Exploring the Links</i> (The ECSP Report, 2005), https://www.wilsoncenter.org/sites/default/files/media/document/s/publication/Hudson%2526denBoer.pdf. • Seema Jayachandran and Ilyana Kuziemko, "Why Do Mothers Breastfeed Girls Less than Boys? Evidence and Implications for Child Health in India*," <i>The Quarterly Journal of Economics</i> 126, no. 3 (August 1, 2011): 1485–1538, https://doi.org/10.1093/qje/qjr029; Elisabetta Aurino, "Do Boys Eat Better than Girls in India? Longitudinal Evidence on Dietary Diversity and Food Consumption Disparities among Children and Adolescents," <i>Economics & Human Biology</i>, In Honor of Nobel Laureate Angus Deaton: Health Economics in Developed and Developing Countries, 25 (May 2017): 99–111, https://doi.org/10.1016/j.ehb.2016.10.007; Silvia Helena Barcellos, Leandro S. Carvalho, and Adriana Lleras-Muney, "Child Gender and Parental Investments in India: Are Boys and Girls Treated Differently?," <i>American Economic Journal: Applied Economics</i> 6, no. 1 (January 2014): 157–89, https://doi.org/10.1257/app.6.1.157; Anand Krishnan, "Gender Inequity in Child Survival: Travails of the Girl Child in Rural North India" (Medical Dissertation, Umeå, Sweden, Umeå University, 2013), 5, https://www.diva-portal.org/smash/get/diva2:648011/FULLTEXT02.pdf. • Eric Neumayer and Thomas Plümper, "The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the

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	<p>Gender Gap in Life Expectancy, 1981–2002,” <i>Annals of the Association of American Geographers</i> 97, no. 3 (2007): 551–66, https://doi.org/10.1111/j.1467-8306.2007.00563.x.</p>
<p>Do cultural norms directly increase women’s life expectancies during climate disasters? For instance:</p> <ul style="list-style-type: none"> • Did women or men die at higher rates during a recent climate crisis (such as flooding or drought)? • Does women’s traditional clothing impede women’s abilities run to high places, climb trees, or swim, leaving them in the path of destruction? • Do gender norms forbid women from removing traditional clothing, making it difficult to be rescued by or received medical care from unrelated men? 	<ul style="list-style-type: none"> • Neumayer and Plümper, “The Gendered Nature of Natural Disasters.” • Lori M. Hunter et al., “Swimming and Gendered Vulnerabilities: Evidence from the Northern and Central Philippines,” <i>Society & Natural Resources</i> 29, no. 3 (2016): 380–85, https://doi.org/10.1080/08941920.2015.1046097. • Eileen Pittaway, Linda Bartolomei, and Susan Rees, “Gendered Dimensions of the 2004 Tsunami and a Potential Social Work Response in Post-Disaster Situations,” <i>International Social Work</i> 50, no. 3 (May 2007): 308–9, https://doi.org/10.1177/0020872807076042.
<p>Following a climate crisis, has the bodily depletion of adult women (through increased social reproductive responsibilities) resulted in increased mortality rates among women? For instance:</p> <ul style="list-style-type: none"> • Has damage to agriculture or increased barriers to obtaining food decreased increased women’s food insecurity and social reproductive labour related too food? • Has poor sanitation due to loss of WASH systems increased women’s UCDW and exposed women to additional diseases? • Has overcrowding or poor living conditions due to a climate crisis impacted the unpaid care workloads and health conditions of women? • Has damage to public health systems increased women’s family care duties and decreased women’s access to health services, 	<ul style="list-style-type: none"> • Neumayer and Plümper, “The Gendered Nature of Natural Disasters.” • Hunter et al., “Swimming and Gendered Vulnerabilities.” • Pittaway, Bartolomei, and Rees, “Gendered Dimensions of the 2004 Tsunami and a Potential Social Work Response in Post-Disaster Situations,” 308–9. • Eric Neumayer and Thomas Plümper, “The Unequal Burden of War: The Effect of Armed Conflict on the Gender Gap in Life Expectancy,” <i>International Organization</i> 60, no. 3 (August 9, 2006): 723–54, https://doi.org/10.1017/S0020818306060231. • Christin Marsh Ormhaug, Patrick Meier, and Helga Hernes, “Armed Conflict Deaths Disaggregated by Gender,” PRIO Paper (Oslo: Peace Research Institute Oslo, 2009), https://www.prio.org/publications/7207.

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<p>particularly during pregnancy and while breastfeeding, lowering women's overall health?</p> <ul style="list-style-type: none"> • Has a loss of social order or networks left women isolated and responsible for a greater number of social reproductive tasks? 	
<p>Have population sex ratios become imbalanced following a climate crisis, and if so, have rates of SGBV increased in response?</p> <ul style="list-style-type: none"> • SGBV rates may increase in the presence of surplus men or surplus women, depending on the local gender norms and culture. • SGBV tends to contribute to bodily depletion, lower women's physical and mental wellbeing. • If SGBV rates have increased, are adequate support services and safe havens available for women? 	<ul style="list-style-type: none"> • Natalie Raaber, "The Impact of the Crisis on Women: Main Trends across Regions," Brief (Toronto: Association for Women's Rights in Development, 2010), 21, https://www.awid.org/sites/default/files/atoms/files/icw_trendsregions.pdf. • Sunita Bose, Katherine Trent, and Scott J. South, "The Effect of a Male Surplus on Intimate Partner Violence in India," <i>Economic and Political Weekly</i> 48, no. 35 (August 31, 2013): 53–61; Sofia Amaral and Sonia Bhalotra, "Population Sex Ratios and Violence Against Women: The Long-Run Effects of Sex Selection in India," <i>Institute for Social & Economic Research</i>, no. 2017–10 (October 2017), https://doi.org/10.2139/ssrn.3055794; Nadia Diamond-Smith and Kara Rudolph, "The Association between Uneven Sex Ratios and Violence: Evidence from 6 Asian Countries," <i>PLoS ONE</i> 13, no. 6 (June 1, 2018), https://doi.org/10.1371/journal.pone.0197516; Stewart J. D'Alessio and Lisa Stolzenberg, "The Sex Ratio and Male-on-Female Intimate Partner Violence," <i>Journal of Criminal Justice</i> 38, no. 4 (2010): 555–61, https://doi.org/10.1016/j.jcrimjus.2010.04.026.

GCS-Factor Life Expectancy: Diagnostic Questions	References/Sources
National/International Security	
<p>Have climate crises disrupted population sex ratios? For instance:</p> <ul style="list-style-type: none"> • Have sex selective abortions become more common as a result of climate crises? • Have son preference practices increased due to climate-related impacts? • Was there a differential impact on mortality rates among women or men following a recent climate disaster? • Have the long-term impacts of climate change shortened women’s life expectancies? <p>If any of these factors are at work locally, have such disruptions in population sex ratios impacted levels of crime, violence, or conflict?</p>	<ul style="list-style-type: none"> • Hudson and den Boer, “Missing Women and Bare Branches: Gender Balance and Conflict.” • Mara Hvistendahl, <i>Unnatural Selection: Choosing Boys over Girls, and the Consequences of a World Full of Men</i> (Public Affairs, 2011); Valerie M. Hudson and Andrea den Boer, <i>Bare Branches: The Security Implications of Asia’s Surplus Male Population</i> (Cambridge, MA, USA: MIT Press, 2004), http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=9963.
<p>Have criminal activity rates, such as local warfare, crime, drug abuse, prostitution, and trafficking of women, increased as a response to climate crises? If so, can such changes be connected to the presence of surplus women or men?</p>	<ul style="list-style-type: none"> • Robert J. Sampson, John H. Laub, and Christopher Wimer, “Does Marriage Reduce Crime? A Counterfactual Approach to Within-Individual Causal Effects*,” <i>Criminology</i> 44, no. 3 (2006): 465–508, https://doi.org/10.1111/j.1745-9125.2006.00055.x; Torbjørn Skardhamar et al., “Does Marriage Reduce Crime?,” <i>Crime and Justice</i> 44 (2015): 385–446, https://doi.org/10.1086/681557; Gettler Lee T. et al., “Longitudinal Evidence That Fatherhood Decreases Testosterone in Human Males,” <i>Proceedings of the National Academy of Sciences</i> 108, no. 39 (September 27, 2011): 16194–99, https://doi.org/10.1073/pnas.1105403108.

GCS-Factor Life Expectancy: Diagnostic Questions	References/Sources
	<ul style="list-style-type: none"> • Ryan Schacht, Doug Tharp, and Ken Smith, “Marriage Markets and Male Mating Effort: Violence and Crime Are Elevated Where Men Are Rare,” <i>Human Nature</i> 27 (December 2016): 489–500, https://doi.org/10.1007/s12110-016-9271-x. • Ronald Noë, “Local Mating Markets in Humans and Non-Human Animals,” <i>Behavioral Ecology and Sociobiology</i> 71, no. 10 (September 15, 2017): 1–18, https://doi.org/10.1007/s00265-017-2376-3; Ryan Schacht, Kristin Liv Rauch, and Monique Borgerhoff Mulder, “Too Many Men: The Violence Problem?,” <i>Trends in Ecology & Evolution</i> 29, no. 4 (April 1, 2014): 214–22, https://doi.org/10.1016/j.tree.2014.02.001; Schacht, Tharp, and Smith, “Marriage Markets and Male Mating Effort.” • Andreas Filser et al., “Are Skewed Sex Ratios Associated with Violent Crime? A Longitudinal Analysis Using Swedish Register Data,” <i>Evolution and Human Behavior</i> 42, no. 3 (May 2021): 212–22, https://doi.org/10.1016/j.evolhumbehav.2020.10.001.
<p>Are women typically involved as policymakers, as decision-makers, or in peace negotiations that result from population sex ratio imbalances?</p>	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Life Expectancy within a spatially explicit and time-specific setting.

Table 57. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Education.

GCS-Factor Education: Diagnostic Questions	References/Sources
Human Security	
<p>A baseline, do girls face barriers to being enrolled in and maintaining high retention rates? For instance:</p> <ul style="list-style-type: none"> • Are rates of female genital mutilation and circumcision, indicating there may be other gender norms that deprioritize girls’ education? • Do girls have household responsibilities that prevent them from attending school regularly? • Do schools have gender-specific toilets as well as menstruation support and supplies? • Do son preference practices limit funds for girls’ education? • Is SGBV (against girls but also LGBTQI+ students) prevalent in the schools? 	<ul style="list-style-type: none"> • UN Women, <i>The UN Women Gender and Economics Training Manual</i>, 2017, 30,44, https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2017/UN-Women-gender-and-economics-training-manual-en.pdf. • Kate Sims, “Education, Girls’ Education and Climate Change,” <i>Emerging Issues</i> (Education Development Trust, March 2021), 14, https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/16523/EIR_29_Education_Girls%27_Education_and_Climate_Change.pdf?sequence=1&isAllowed=y. • Jerker Edström et al., <i>EMERGE Engendering Men: A Collaborative Review of Evidence on Men and Boys in Social Change and Gender Equality</i> (Brighton: Institute of Development Studies, 2015), 54, https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/7059/EMERGE.pdf?sequence=1. • Edström et al., <i>EMERGE Engendering Men</i>, 55.
<p>How do education levels among adult women compare to other indicators of the economic and social stability of women? For instance:</p> <ul style="list-style-type: none"> • How do local fertility rates compare to national or regional 	

GCS-Factor Education: Diagnostic Questions	References/Sources
<p>averages?</p> <ul style="list-style-type: none"> • What size is the average local family compared to national or regional averages? • How do women’s rates of employment and salary/wage levels compare to men’s? <p>Lower fertility rates, smaller families, and higher rates of employment among women are all good indicators of higher education levels and potentially greater community stability.</p>	
<p>Have income levels (women and men) fallen as a result of recent climate shocks? If so:</p> <ul style="list-style-type: none"> • Have families resorted to pulling girl children (more than boy children) out of school as an adaptation strategy? • Have increased social reproductive responsibilities of girl children (cleaning, cooking, gardening, caring for sick family members) lowered girls’ school attendance and retention levels? 	<ul style="list-style-type: none"> • “Global Education Monitoring Report 2020: Gender Report, A New Generation: 25 Years of Efforts for Gender Equality in Education” (UNESCO, 2020), • Ellen Chigwanda, “A Framework for Building Resilience to Climate Change through Girls’ Education Programming,” Policy Brief (Center for Universal Education at Brookings, December 2016), 4, https://www.ungei.org/sites/default/files/Building-Resilience-Climate-Change-through-Girls-Education-2016-eng.pdf.
<p>Have climate-fueled crises resulted in any household- or community-level disruptions in education for girls or boys? For instance:</p> <ul style="list-style-type: none"> • Has a climate disaster destroyed community school infrastructure, lead to teacher losses, or generated significant psychological distress that has disrupted education of girls or boys more? • Have governments imposed austerity measures in the wake of a climate disaster that have contributed to reductions in 	<ul style="list-style-type: none"> • Lois Onigbinde, “The Impacts of Natural Disasters on Educational Attainment: Cross-Country Evidence from Macro Data” (Master’s Thesis, The University of San Francisco, 2018); Vidya Diwakar et al., “Child Poverty, Disasters and Climate Change” (Chronic Poverty Advisory Network, March 2019). • Carolyn Kousky, “Impacts of Natural Disasters on Children,” <i>The Future of Children</i> 26, no. 1 (2016): 73–92, https://doi.org/10.1353/foc.2016.0004. • Hannah Bargawi, Giovanni Cozzi, and Susan Himmelweit,

GCS-Factor Education: Diagnostic Questions	References/Sources
<p>education availability for either girls or boys?</p> <ul style="list-style-type: none"> • Has household displacement resulted in relocation to a community without adequate school facilities? If so, is there a difference in girls' and boys' rates of education in the new location? • Have rates of child marriage increased following a climate crisis? If so, has this had an impact on girls' participation in school? 	<p>eds., <i>Economics and Austerity in Europe: Gendered Impacts and Sustainable Alternatives</i>, 1st ed. (London: Routledge, 2016), 21, https://doi.org/10.4324/9781315627762.</p> <ul style="list-style-type: none"> • McLeod, Barr, and Rall, "Does Climate Change Increase the Risk of Child Marriage?," 115. • Anju Malhotra and Shatha Elnakib, "20 Years of the Evidence Base on What Works to Prevent Child Marriage: A Systematic Review," <i>Journal of Adolescent Health</i> 68, no. 5 (May 1, 2021): 847–62, https://doi.org/10.1016/j.jadohealth.2020.11.017. • Malhotra and Elnakib, "20 Years of the Evidence Base on What Works to Prevent Child Marriage."
<p>Are adult women and men permitted to participate in climate adaptation educational opportunities equally? Do women's social reproductive responsibilities or finances limit their participation?</p>	<ul style="list-style-type: none"> • Aastha Bhusal, Lakpa Sherpa, and Laxman Khatri, "Climate-Smart Agriculture Takes off, Thanks to 'women-Friendly' Tools and a Gender-Smart Approach" (CDKN: Laxman Khatri's Lab, September 2020). • Christina Kwauk, "Roadblocks to Quality Education in a Time of Climate Change," Brief (Center for Universal Education at Brookings, February 2020), 2, https://www.brookings.edu/wp-content/uploads/2020/02/Roadblocks-to-quality-education-in-a-time-of-climate-change-FINAL.pdf. • Andrea J. Nightingale, "Power and Politics in Climate Change Adaptation Efforts: Struggles over Authority and Recognition in the Context of Political Instability," <i>Geoforum</i> 84 (August 2017): 11–20, https://doi.org/10.1016/j.geoforum.2017.05.011.
<p>Do local education opportunities reinforce gender inequalities or transform them? And have the curricula been adjusted in the wake</p>	<ul style="list-style-type: none"> • Naureen Durrani and Máiréad Dunne, "Curriculum and National Identity: Exploring the Links between Religion and

GCS-Factor Education: Diagnostic Questions	References/Sources
<p>of a recent climate crisis? For instance:</p> <ul style="list-style-type: none"> • Does local curricula reinforce unequal gender norms or attempt to stress the importance of gender equality? • Do gender norms encourage both girls and boys to engage in education? • How do women’s and men’s educational attainment levels compare (since men’s attainment levels are a key factor in forecasting men’s attitudes toward gender roles and equality, and in forecasting whether men believe that violence/conflict, including SGBV, are the best ways to solve problems)? 	<p>Nation in Pakistan,” <i>Journal of Curriculum Studies</i> 42, no. 2 (2010): 232–33.</p> <ul style="list-style-type: none"> • Edström et al., <i>EMERGE Engendering Men</i>, 61.
National/International Security	
<p>Do larger narratives emphasize any of the following beliefs about the role of gender hierarchies in the community?</p> <ul style="list-style-type: none"> • Men hold masculinized leadership roles over women • Women’s roles are invisibilized in history • Women’s roles are spoken of primarily in service of men • Sexual- and gender-based violence is condoned to solve problems between genders <p>Systems that emphasize the subordination of women at the household level via the ‘Patrilineal/Fraternal Syndrome’ are more likely to experience instability and insecurity, lower levels of overall well-being, greater environmental degradation, and decreased prosperity.</p>	<ul style="list-style-type: none"> • Durrani and Dunne, “Curriculum and National Identity,” 232–33. • Valerie M. Hudson, Donna Lee Bowen, and Perpetua Lynne Nielsen, “The Effects by the Numbers: The Syndrome and Measures of National Outcome,” in <i>The First Political Order, How Sex Shapes Governance and National Security Worldwide</i> (Columbia University Press, 2020), 310, http://www.jstor.org/stable/10.7312/huds19466.11. • Shon Michael Reed, “Boys to Men: Masculinity, Victimization, and Offending” (Master’s Thesis, Las Vegas, University of Nevada, 2015), 1, https://digitalscholarship.unlv.edu/thesesdissertations/3316.

GCS-Factor Education: Diagnostic Questions	References/Sources
<p>Have education levels for men and boys fallen following a recent climate crisis? Lower education levels have been associated with feelings of emasculation (if their educational achievement is lower than women's), which may contribute to higher rates of criminality among men.</p>	<ul style="list-style-type: none"> • Reed, "Boys to Men," 1.
<p>Have climate-caused government budget cuts resulted in the delivery of education to elites or allied groups only rather than universally? Favouritism in delivery of public services such as education has been linked to higher rates of anti-state grievance and may increase rates of political unrest. Denial of education may also be used as a weapon of war, or may include a gender component (denying education to girls but not boys). Restricted access to school may be an early warning sign of deteriorating tensions between societal groups.</p>	<ul style="list-style-type: none"> • Carolyn Pumphrey, ed., <i>Global Climate Change: National Security Implications</i> (Fort Belvoir, VA: Triangle Institute for Security Studies, USAWC Press, 2008), 92, https://doi.org/10.21236/ADA480687. • Kenneth D. Bush and Diana Saltarelli, eds., <i>The Two Faces of Education in Ethnic Conflict: Towards a Peacebuilding Education for Children</i>, Innocenti Insight 4 (Florence: UNICEF Innocenti Research Centre, 2000), 10, https://www.unicef-irc.org/publications/pdf/insight4.pdf.
<p>Have local education systems been weaponized and masculinized as a way of perpetuating structural inequalities and institutional violence against minorities, often against women and girls, by reinforcing racial/ethnic/religious/class/socioeconomic 'othering'? And have the curricula been adjusted in the wake of a recent climate crisis? For instance:</p> <ul style="list-style-type: none"> • Has education been used to instill hatred of the 'other'? • Have curricula been used as a form of ethnocide, robbing minority groups of their language, tradition, and values? 	<ul style="list-style-type: none"> • Tejendra Pherali and Ellen Turner, "Meanings of Education under Occupation: The Shifting Motivations for Education in Palestinian Refugee Camps in the West Bank," <i>British Journal of Sociology of Education</i> 39, no. 4 (May 19, 2018): 567–89, https://doi.org/10.1080/01425692.2017.1375400. • Bush and Saltarelli, <i>The Two Faces of Education in Ethnic Conflict</i>, 10. • Pherali and Turner, "Meanings of Education under Occupation"; Marie Lall, "Educate to Hate: The Use of Education in the Creation of Antagonistic National Identities

GCS-Factor Education: Diagnostic Questions	References/Sources
<ul style="list-style-type: none"> • Has education been used to manipulate history, inculcate authoritarian and chauvinistic values and identities, and lead to fundamentalization of national identities? 	<p>in India and Pakistan,” <i>Compare: A Journal of Comparative and International Education</i> 38, no. 1 (January 11, 2008): 103–19, https://doi.org/10.1080/03057920701467834.</p>
<p>Has educational programming been specifically designed to prevent tensions and conflict? For instance, curriculum can play a mediating role by:</p> <ul style="list-style-type: none"> • Preventing grievance by demonstrating to people (regardless of identity) that their government is attempting to improve their lives • Adding stability by giving people tools to resolve disputes peacefully, making them less likely to join an armed group or rebellion • Fostering and sustaining ethnically and linguistically tolerant environments • Cultivating attitudes of desegregation and inclusive citizenship • Disarming history and defying state oppression <p>If yes to any of the above, have women also been included in the peace-based educational programming? This is often necessary in order to meaningfully involve women in peacebuilding and decision-making.</p>	<ul style="list-style-type: none"> • Clayton L. Thyne, “ABC’s, 123’s, and the Golden Rule: The Pacifying Effect of Education on Civil War, 1980?1999,” <i>International Studies Quarterly</i> 50, no. 4 (December 2006): 733–54, https://doi.org/10.1111/j.1468-2478.2006.00423.x. • Bush and Saltarelli, <i>The Two Faces of Education in Ethnic Conflict</i>, 16–21. • Paul Collier et al., “Breaking the Conflict Trap : Civil War and Development Policy,” A World Bank Policy Research Report (Washington, DC: World Bank Group: eLibrary, 2003), 153, https://doi.org/10.1596/978-0-8213-5481-0.

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Education within a spatially explicit and time-specific setting.

Table 58. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Standard of Living.

GCS-Factor Standard of Living: Diagnostic Questions	References/Sources
Human Security	
<p>At baseline, does your local government provide any public benefits, such as employment or other financial assistance; healthcare, social security, or disability insurance; education systems; housing assistance; libraries; hospitals; or transit systems? If so:</p> <ul style="list-style-type: none"> • Are they offered to women and men equally? • When government budgets get tight, who in the community picks up the slack to provide the public benefits? Is women’s UCDW expected to expand and contract to subsidize lost public systems? 	<ul style="list-style-type: none"> • Antonella Picchio, <i>Social Reproduction: The Political Economy of the Labour Market</i> (Cambridge, England; New York: Cambridge University Press, 1992).
<p>Has your local government implemented any austerity measures (cuts to public services) in order to cope with the financial costs of climate change? See examples listed in Table 32. If so:</p> <ul style="list-style-type: none"> • In general, have cuts been made to services that support the care economy (child care, elder care, health care, etc.) or the production economy (those businesses that produce goods and services for profit)? • Is the assumption that women’s UCDW/social reproductive work will fill the gaps created by spending cuts to public services? • Has the economic impact of austerity measures been tracked 	<ul style="list-style-type: none"> • Kate Donald and Nicholas Lusiani, “The Gendered Costs of Austerity: Assessing the IMF’s Role in Budget Cuts Which Threaten Women’s Rights,” Briefing Note, The IMF, Gender Equality and Expenditure Policy (Brazil: Bretton Woods Project, 2017), 9, https://socialprotection-humanrights.org/resource/gendered-costs-austerity-assessing-imfs-role-budget-cuts-threaten-womens-rights/.

GCS-Factor Standard of Living: Diagnostic Questions	References/Sources
for women and men?	
Have increased demands on women’s UCDW/social reproduction resulted in a higher level of bodily depletion, demonstrated through more health concerns, sick days, absences from work, doctor’s visits, or mental health strain?	<ul style="list-style-type: none"> • Meg Luxton, “Feminist Political Economy in Canada and the Politics of Social Reproduction,” in <i>Social Reproduction: Feminist Political Economy Challenges Neo-Liberalism</i>, ed. Kate Bezanson and Meg Luxton (Canada: McGill Queen University Press, 2006), 38. • Smriti Rao, “Beyond the Coronavirus: Understanding Crises of Social Reproduction,” <i>Global Labour Journal</i> 12, no. 1 (January 31, 2021): 43, https://doi.org/10.15173/glj.v12i1.4307.
Have austerity measures included wage, benefits, or job cuts within the public sector (where women hold a disproportionate number of jobs)? If so, has the economic impact of such cuts on women and men been measured?	<ul style="list-style-type: none"> • Donald and Lusiani, “The Gendered Costs of Austerity,” 9.
Have austerity measures included cuts to services that are essential to women’s safety and security, such as shelters for survivors of SGBV, healthcare, job training, education, reproductive services, and refugee support? Have such cuts had a more profound impact on those with intersectional identities (sexuality, nationality, migrant status, ethnicity, disability, class, or religion)?	<ul style="list-style-type: none"> • Donald and Lusiani, “The Gendered Costs of Austerity,” 10.

GCS-Factor Standard of Living: Diagnostic Questions	References/Sources
<p>Has scapegoating of public sector employees or public benefit recipients increased due to climate-caused financial strains? Is there a gender divide in terms of who perpetuates and who is victim of scapegoating? Have such attacks added mental/emotional strain (and possibly bodily depletion) to the burdens of those impacted?</p>	<ul style="list-style-type: none"> • Aileen Marron, “Framing the HSE: A Print Media Analysis of the Irish Health Service Executive and Its Employees,” <i>Socheolas: Limerick Student Journal of Sociology</i> 4, no. 2 (December 2012): 4–22. • Iolanda Fresnillo Sallan, “Debt and Climate: Entangled Emergencies Derailing Women’s Rights and Gender Justice,” <i>Gender & Development</i> 28, no. 3 (December 10, 2020): 499–513, https://doi.org/10.1080/13552074.2020.1838168.
National/International Security	
<p>Have climate-induced austerity measures included cuts for law enforcement and crime prevention? If so, have crime rates increased as a result?</p>	<ul style="list-style-type: none"> • Tania Arrieta Hernandez, “The Consequences of the Austerity Policies for Public Services in the UK,” <i>Studies in Social Justice</i> 15, no. 3 (May 6, 2021): 527, https://doi.org/10.26522/ssj.v15i3.2568. • Elisa Facchetti, “Police Infrastructure, Police Performance, and Crime: Evidence from Austerity Cuts” (Urban Economics Association, Queen Mary University of London, 2021), 92, https://csef.it/wp-content/uploads/E_Facchetti.pdf.
<p>If your local government has made austerity cuts to public services, have criminality rates been measured before and after to track whether reduction in public support is a possible cause? Is there a gender divide in terms of who is engaging in which types of criminal activity?</p>	<ul style="list-style-type: none"> • Heikki Ervasti, Antti Kouvo, and Takis Venetoklis, “Social and Institutional Trust in Times of Crisis: Greece, 2002–2011,” <i>Social Indicators Research</i> 141, no. 3 (February 2019): 1207–31, https://doi.org/10.1007/s11205-018-1862-y. • Signe Hald Andersen, “Unemployment and Crime: Experimental Evidence of the Causal Effects of Intensified ALMPs on Crime Rates among Unemployed Individuals,” <i>The British Journal of Criminology</i> 61, no. 5 (September 2, 2021): 1316–33, https://doi.org/10.1093/bjc/azab002.

GCS-Factor Standard of Living: Diagnostic Questions	References/Sources
<p>Have climate-induced austerity measures triggered an increase in public protest or unrest? If so, have austerity measures impacted all genders, classes, ethnicities, races, religions, etc. equally?</p>	<ul style="list-style-type: none"> • Mario Quaranta, “Collective and Private Resources and the Inequalities of Non-Violent Political Protest in European Countries,” <i>Journal of Civil Society</i> 10, no. 3 (2014): 294–316, https://doi.org/10.1080/17448689.2014.944684; Kyle Dodson, “Economic Threat and Protest Behavior in Comparative Perspective,” <i>Sociological Perspectives</i> 59, no. 4 (December 2016): 873–91, https://doi.org/10.1177/0731121415608508. • Isabel Ortiz et al., “World Protests 2006-2013” (Initiative for Policy Dialogue and Friedrich-Ebert-Stiftung New York Working Paper No. 2013, September 2013), 19–20, https://doi.org/10.2139/ssrn.2374098. • Earl Conteh-Morgan, “Structural Violence and Relative Deprivation: Precursors to Collective Political Violence in Sierra Leone” (Center for Strategic Studies, Joint Special Operations University Press Publications, 2018), 7. • Zeynep Taydas and Dursun Peksen, “Can States Buy Peace? Social Welfare Spending and Civil Conflicts,” <i>Journal of Peace Research</i> 49, no. 2 (March 2012): 273–87, https://doi.org/10.1177/0022343311431286.
<p>Have climate-induced austerity measures triggered an increase in public protest or unrest? If so:</p> <ul style="list-style-type: none"> • Have there been gender differences in the types of cuts that animate women and men? • Have there been gender differences in the types of protests they’re willing to engage in (violent or not)? • Has women’s UCDW impacted whether or not they 	<ul style="list-style-type: none"> • Neal Caren, Raj Andrew Ghoshal, and Vanesa Ribas, “A Social Movement Generation: Cohort and Period Trends in Protest Attendance and Petition Signing,” <i>American Sociological Review</i> 76, no. 1 (February 2011): 125–51. • Silke Roth and Clare Saunders, “Do Gender Regimes Matter? Gender Differences in Involvement in Anti-Austerity Protests - a Comparison of Spain, Sweden and the United Kingdom,” <i>Social Movement Studies</i> 19, no. 3 (May 3, 2020): 317,

GCS-Factor Standard of Living: Diagnostic Questions	References/Sources
<p>participate in protests?</p> <ul style="list-style-type: none"> • Are there gender divides in institutionalized versus non-institutionalized forms of protest? 	<p>https://doi.org/10.1080/14742837.2019.1676222.</p> <ul style="list-style-type: none"> • Roth and Saunders, “Do Gender Regimes Matter?,” 317. • Sofie Marien, Marc Hooghe, and Ellen Quintelier, “Inequalities in Non-Institutionalised Forms of Political Participation: A Multi-Level Analysis of 25 Countries,” <i>Political Studies</i> 58, no. 1 (February 2010): 7, https://doi.org/10.1111/j.1467-9248.2009.00801.x Interestingly, non-institutionalized forms of participation generally reinforce educational inequalities (higher levels of education are found in those participating in formal political spaces), and therefore are not effective means for lower-education groups to gain access to decision-making spheres. • Sikweyiya and Nkosi, “Violent Protests and Gendered Identities.”
<p>Are women typically involved as policymakers, as decision-makers, or in peace negotiations regarding threats that may arise from austerity measures?</p>	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Standard of Living within a spatially explicit and time-specific setting.

Table 59. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Unemployment.

GCS-Factor Unemployment: Diagnostic Questions	References/Sources
Human Security	
<p>What kinds of care and domestic work (childcare; providing medical/support care to sick or frail adults; performing domestic work such as laundry, cooking, and collecting fuel or water, etc.) are unpaid in the local community, and who is responsible for these unpaid care and domestic work (UCDW) tasks?</p> <ul style="list-style-type: none"> • How do women’s and men’s wages, benefits, and other compensation compare to one another? • What is the difference in time spent between women and men, girls and boys on paid work? Unpaid work? • Do local gender norms dictate that women/girls are responsible for a higher percentage of unpaid care and domestic work (UCDW)? 	<ul style="list-style-type: none"> • Leyla Karimli et al., “Factors and Norms Influencing Unpaid Care Work: Household Survey Evidence from Five Rural Communities in Colombia, Ethiopia, the Philippines, Uganda and Zimbabwe,” Evaluation Report (Oxfam Policy & Practice, November 15, 2016), 15, https://policy-practice.oxfam.org/resources/factors-and-norms-influencing-unpaid-care-work-household-survey-evidence-from-f-620145/. • Karimli et al., “Factors and Norms Influencing Unpaid Care Work,” 48.
<p>What coping mechanisms do women tend to use to reconcile the work-family interface dilemmas? For instance:</p> <ul style="list-style-type: none"> • Compensation: over-invest in one domain to compensate for dissatisfaction in the other • Accommodation: limit investments in one sphere to satisfy demands in the other • Boundary management: develop principles/practices for creating, maintaining, crossing borders between the spheres <p>Do their coping mechanisms feed into a self-reinforcing cycle of</p>	<ul style="list-style-type: none"> • Jennifer E. Jennings and Megan S. McDougald, “Work-Family Interface Experiences and Coping Strategies: Implications for Entrepreneurship Research and Practice,” <i>Academy of Management Review</i> 32, no. 3 (July 2007): 748, https://doi.org/10.5465/amr.2007.25275510.

GCS-Factor Unemployment: Diagnostic Questions	References/Sources
low income and time poverty?	
<p>What kinds of UCDW tasks have increased in complexity or time required given climate change impacts, and who is responsible for these UCDW tasks?</p> <ul style="list-style-type: none"> • When a crisis strikes, how do expectations on women and men change relative to UCDW? • What types of UCDW tasks are added to women’s and men’s responsibilities following a crisis? Tasks related to the replacement of public services (education, family health care, child care, health/medical care, etc.)? Tasks related to the DIY production of high-cost items (such as clothing or food)? • How does the increase in UCDW impact women’s or men’s mental and physical health? 	<ul style="list-style-type: none"> • Lawson et al., “Time to Care,” 41.
<p>Have the climate-caused increased responsibilities of UCDW increased rates of SGBV? If so:</p> <ul style="list-style-type: none"> • Have SGBV rates increased as ‘punishment’ for unmet UCDW expectations? Or due to increased risks on journeys to gather water, fuel, food, etc.? • Have SGBV-related injuries or illness increased women’s absentee days from work? • Has women’s mental/emotional health declined due to increases in SGBV, causing extra missed days of work? 	<ul style="list-style-type: none"> • Andrea Azevedo et al., “Gendered Patterns of Unpaid Care and Domestic Work in the Urban Informal Settlements of Nairobi, Kenya: Findings from a Household Care Survey – 2019” (Oxfam Policy & Practice, November 19, 2019), 11, https://policy-practice.oxfam.org/resources/gendered-patterns-of-unpaid-care-and-domestic-work-in-the-urban-informal-settle-620910/. • Amiera Sawas et al., “Gender, Climate & Security: Sustaining Inclusive Peace on the Frontlines of Climate Change” (UN Environment Programme. UN Women, UNDP, UNDPPA/PBSO, June 2020), 19, https://wedocs.unep.org/bitstream/handle/20.500.11822/32638/GCS.pdf?sequence=1&isAllowed=y.

GCS-Factor Unemployment: Diagnostic Questions	References/Sources
	<ul style="list-style-type: none"> • Dominique A. Cadilhac et al., “The Health and Economic Benefits of Reducing Intimate Partner Violence: An Australian Example,” <i>BMC Public Health</i> 15 (July 9, 2015): 625, https://doi.org/10.1186/s12889-015-1931-y.
<p>Have climate-induced economic impacts affected the unemployment rate among women and men? Has the impact been more profound for one gender? For instance:</p> <ul style="list-style-type: none"> • Have those who work in environment-based or agriculture-based employment seen a more significant unemployment increase? • When businesses begin to re-hire, do they tend to hire back women or men first? • When businesses begin to re-hire, are women and men offered the same wages, benefits, and hours? • Do governments offer re-skilling and re-training opportunities equally to women and men following an economic crisis? • Have men experienced greater unemployment due to extreme weather events such as flooding or waterlogging? • Do women or men have better livelihood adaptation strategies for adjusting to impacts on the economy from climate change? 	<ul style="list-style-type: none"> • Patricia Alexander, Alice Nabalamba, and Maurice Mubila, “The Link Between Climate Change, Gender and Development in Africa,” <i>The African Statistical Journal</i> 12 (May 2011): 119–40; Luis Enrique Escalante and Helene Maisonnave, “Assessing the Impacts of Climate Change on Female Poverty and Domestic Burdens: A Bolivian Case Study” (Normandy: Le Havre University, Department of Economics, 2020), https://genderandsecurity.org/sites/default/files/Escalante_Maisonnave_-_Impacts_of_Climate_Change_on_Ws_Poverty_Domestic_Burdens_Bolivia.pdf; Senay Habtezion, “Gender and Climate Finance - Policy Brief (Asia and the Pacific),” Technical Report (United Nations Development Programme, January 2013), https://www.researchgate.net/publication/282662844_Gender_and_Climate_Finance_-_Policy_Brief_Asia_and_the_Pacific; Farzana Afridi, Kanika Mahajan, and Nikita Sangwan, “The Gendered Effects of Climate Change: Production Shocks and Labor Response in Agriculture,” <i>SSRN Electronic Journal</i>, 2021, https://doi.org/10.2139/ssrn.3892596. • “Gender and Prosperity of Cities, State of Women in Cities 2012/2013 UN-Habitat” (UN-HABITAT, 2013), 46,

GCS-Factor Unemployment: Diagnostic Questions	References/Sources
	<p>https://unhabitat.org/gender-and-prosperity-of-cities-state-of-women-in-cities-20122013.</p> <ul style="list-style-type: none"> • Christopher Cramer, “Unemployment and Participation in Violence,” Background Paper 2011 (World Development Report, November 16, 2010), 24, http://web.worldbank.org/archive/website01306/web/pdf/wdr%20background%20paper%20-%20cramer.pdf. • Maia Call and Samuel Sellers, “How Does Gendered Vulnerability Shape the Adoption and Impact of Sustainable Livelihood Interventions in an Era of Global Climate Change?,” <i>Environmental Research Letters</i> 14, no. 8 (July 2019): 083005, https://doi.org/10.1088/1748-9326/ab2f57. • Sogani, “Gender Approaches in Climate Compatible Development,” 19. • N. A. Omolo, “Gender and Climate Change-Induced Conflict in Pastoral Communities: Case Study of Turkana in Northwestern Kenya,” <i>African Journal on Conflict Resolution</i> 10, no. 2 (2010), https://doi.org/10.4314/ajcr.v10i2.63312.
<p>Are women finding new opportunities for employment in the wake of a climate-caused economic disruption (especially in urban environments)? For instance:</p> <ul style="list-style-type: none"> • Greater skill development opportunities? • New entrepreneurship opportunities? • Strategic development options? • More space for work-based innovation? <p>Furthermore, do increased employment opportunities in urban environments offer women greater bargaining power in the</p>	<ul style="list-style-type: none"> • “Gender and Prosperity of Cities, State of Women in Cities 2012/2013 UN-Habitat,” 45. • Lori M Hunter and Emmanuel David, “Climate Change and Migration: Considering the Gender Dimensions” (Working Paper, Institute of Behavioral Science, University of Colorado at Boulder, November 2009), 7, https://genderandsecurity.org/sites/default/files/Hunter_David_-_Climate_Change_Migratn.pdf; Namrata Chindarkar, “Gender and Climate Change-Induced Migration: Proposing a Framework for Analysis,” <i>Environmental Research Letters</i> 7,

GCS-Factor Unemployment: Diagnostic Questions	References/Sources
household?	no. 2 (June 2012), https://doi.org/10.1088/1748-9326/7/2/025601 ; Afridi, Mahajan, and Sangwan, “The Gendered Effects of Climate Change.”
<p>Have new employment opportunities for women offered by a climate-shifted economy come with some downsides? If so:</p> <ul style="list-style-type: none"> • Have women experienced a backlash or reprisals by men (who may be experiencing less employment security) in response to taking advantage of new employment opportunities? • Do new employment opportunities come with new UCDW responsibilities (or at least no decrease in existing social reproductive work)? 	<ul style="list-style-type: none"> • Eugenia Canessa and Gianna Claudia Giannelli, “Women’s Employment and Natural Shocks,” <i>IZA Discussion Papers, Institute of Labor Economics</i>, Discussion Paper Series, 2021, 54; Yoo-Mi Chin, “Male Backlash, Bargaining, or Exposure Reduction?: Women’s Working Status and Physical Spousal Violence in India,” <i>Journal of Population Economics</i> 25, no. 1 (2012): 175–200. • <u>Phudoma Lama, Mo Hamza, and Misse Wester, “Gendered Dimensions of Migration in Relation to Climate Change.” <i>Climate and Development</i> 13, no. 4 (April 21, 2021): 326–36. https://doi.org/10.1080/17565529.2020.1772708.</u>
National/International Security	
<p>Has climate change triggered increased unemployment among men (particularly young men)? If so, has lack of employment made it difficult for young men to perform their culturally-ascribed masculine roles (finding work, getting married, etc.)? If yes, then:</p> <ul style="list-style-type: none"> • Have criminal offending and re-offending increased more among women or men? If so, what types of crimes are generally committed by women and omen? • Have rebel or extremist groups used negative sentiments regarding unemployment to recruit young men? • Have rates of anti-state grievances or state- or non-state violence increased with increased unemployment (particularly among young men)? 	<ul style="list-style-type: none"> • Alice Poncelet et al., “A Country Made for Disasters: Environmental Vulnerability and Forced Migration in Bangladesh,” in <i>Environment, Forced Migration and Social Vulnerability</i>, ed. Tamer Afifi and Jill Jäger (Berlin, Heidelberg: Springer Berlin Heidelberg, 2010), 216, https://doi.org/10.1007/978-3-642-12416-7_16; Hugh Roland, “Climate Change-Related Internal Migration among Geographically Isolated Islands in the Central Pacific,” 2018, https://paa.confex.com/paa/2018/mediafile/ExtendedAbstract/Paper24422/PAA%202018%20Roland.pdf; Valerie Mueller, Clark Gray, and Douglas Hopping, “Climate-Induced Migration and Unemployment in Middle-Income Africa,” <i>Global Environmental Change</i> 65 (November 2020),

GCS-Factor Unemployment: Diagnostic Questions	References/Sources
<ul style="list-style-type: none"> • Have tensions between societal groups increased as unemployment rates have increased? If so, are these complicated by differential impacts based on identity (race, ethnicity, class, socioeconomic status, gender, etc.)? 	<p>https://doi.org/10.1016/j.gloenvcha.2020.102183; Clark Gray and Valerie Mueller, “Drought and Population Mobility in Rural Ethiopia,” <i>World Development</i> 40, no. 1 (January 2012): 134–45, https://doi.org/10.1016/j.worlddev.2011.05.023.</p> <ul style="list-style-type: none"> • Patrick Bennett and Amine Ouazad, “Job Displacement, Unemployment, and Crime: Evidence from Danish Microdata and Reforms,” <i>Journal of the European Economic Association</i> 18, no. 5 (October 1, 2020): 2182–2220, https://doi.org/10.1093/jeea/jvz054; Manudeep Bhuller et al., “Incarceration, Recidivism and Employment” (Cambridge, MA: National Bureau of Economic Research, 2016), 93, https://www.nber.org/system/files/working_papers/w22648/w22648.pdf; Garima Siwach, “Unemployment Shocks for Individuals on the Margin: Exploring Recidivism Effects,” <i>Labour Economics</i> 52 (June 2018): 231–44, https://doi.org/10.1016/j.labeco.2018.02.001. • Ahmet Guler, Kaan Boke, and Lucy K. Tsado, “Analyzing Nigerians’ Perspectives on the Causes of Violent Extremism, Government Responses, and Possible Solutions,” <i>Security Journal</i>, February 16, 2022, https://doi.org/10.1057/s41284-022-00330-9; Benjamin Crost, “Economic Conditions and the Rise of Anti-Democratic Extremism,” <i>Empirical Studies of Conflict Project (ESOC) Working Papers</i>, Empirical Studies of Conflict Project (ESOC) Working Papers (Empirical Studies of Conflict Project, March 2021), https://ideas.repec.org/p/pri/esocpu/24.html; Drew Mikhael and Julie Norman, “Refugee Youth, Unemployment and Extremism: Countering the Myth,” <i>Forced Migration Review, Refugee Studies Centre: Oxford Department of International</i>

GCS-Factor Unemployment: Diagnostic Questions	References/Sources
	<p><i>Development</i>, Syrians in displacement, 57 (February 2018), https://psychotraumanet.org/sites/default/files/documents/mikhael-norman-Refugee%20youth%2C%20unemployment%20and%20extremism.pdf; Mohamed Abdel Jelil et al., <i>Unemployment and Violent Extremism: Evidence from Daesh Foreign Recruits</i> (Washington, DC: World Bank, 2018), https://doi.org/10.1596/1813-9450-8381.</p>
<p>Have scarce job opportunities prompted men to take jobs that are demeaning and monotonous or offer little chance of promotion or skill development, poor wages, and exploitative or coercive conditions?</p> <ul style="list-style-type: none"> • If so, have rates of recruitment of men into insurgencies, gangs, and militias increased? 	
<p>Are women typically involved as policymakers, as decision-makers, or in peace negotiations regarding the challenges of Unemployment?</p>	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Unemployment within a spatially explicit and time-specific setting.

Table 60. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Socioeconomic Development.

GCS-Factor Socioeconomic Development: Diagnostic Questions	References/Sources
Human Security	
<p>Do women with lower socioeconomic status experience higher rates of SGBV? For instance, SGBV rates may increase in the following circumstances?</p> <ul style="list-style-type: none"> • Due to increased UCDW responsibilities and the risks therein • Following climate-related disasters • Because of household food insecurity • Due to lower levels of education • Due to a decrease in men’s employment levels compared to that of women’s • In response to a surplus of men in economic zones 	<ul style="list-style-type: none"> • Jacqui True, “The Political Economy of Violence Against Women: A Feminist International Relations Perspective,” <i>The Australian Feminist Law Journal</i> 32 (2010): 39–59. • Mikaila V Smith, “Applying the United Nations Trafficking Protocol in the Context of Climate Change,” <i>Chicago Journal of International Law</i> 22, no. 1 (June 22, 2021): 299–334.
<p>Do women with lower socioeconomic status experience higher rates of violence as an intimidation tactic to gain control over natural resources or intimidate those protecting natural resources?</p>	<ul style="list-style-type: none"> • Carney I. Castañeda et al., <i>Gender-Based Violence and Environment Linkages</i> (IUCN, 2020), https://doi.org/10.2305/IUCN.CH.2020.03.en.
<p>Does a woman’s socioeconomic status impede her ability to own or use a mobile phone, the internet, climate risk insurance, or banking and financial services? If so:</p> <ul style="list-style-type: none"> • Do women with less socioeconomic power find it difficult to access emergency finances following a climate disaster? • Do women rely on social cash from family and friends as an emergency stopgap during a climate crisis? 	<ul style="list-style-type: none"> • Volz Ulrich et al., “Inclusive Green Finance: From Concept to Practice” (Kuala Lumpur; London: Alliance for Financial Inclusion and SOAS, University of London, 2020), https://eprints.soas.ac.uk/34540/1/AFI_IGF_SOAS_digital.pdf. • Santosham and Lindsey, “Connected Women: Bridging the Gender Gap - Mobile Access and Usage in Low- and Middle-Income Countries”; Samia Melhem, Claudia Morell, and Nidhi Tandon, “Information and Communication Technologies for

GCS-Factor Socioeconomic Development: Diagnostic Questions	References/Sources
<ul style="list-style-type: none"> • Are women able to access emergency information if they are not able to access the internet or mobile phone technology? 	<p>Women’s Socio-Economic Empowerment,” Working Papers (The World Bank, October 2, 2009), https://elibrary-worldbank-org.ezp-prod1.hul.harvard.edu/doi/abs/10.1596/978-0-8213-8133-5.</p> <ul style="list-style-type: none"> • Faulkner, “The Technology Question in Feminism”; Bray, “Gender and Technology.” • A. H. M. Belayeth Hussain et al., “Financial Inclusion, Financial Resilience, and Climate Change Resilience,” in <i>Handbook of Climate Change Management: Research, Leadership, Transformation</i>, ed. Walter Leal Filho, Johannes Luetz, and Desalegn Ayal (Cham: Springer International Publishing, 2021), 1–23, https://doi.org/10.1007/978-3-030-22759-3_19-1.
<p>Do financial and telecommunication systems reforms address the deep structural gender inequalities within neoliberal markets that may limit women’s access to the emergency services they need following a climate crisis? For instance:</p> <ul style="list-style-type: none"> • Do reforms redistribute power, or replicate existing structures of exclusion that rely on individual effort, entrepreneurship, and market opportunities to grant loans/insurance, etc. • Do financial and telecommunications systems consider how women use their services to perform social reproductive activities within their communities (and not solely for themselves), and therefore increased access may serve only to add ‘feminized responsibility’ to women’s existing burdens? 	<ul style="list-style-type: none"> • Serena Natile, <i>The Exclusionary Politics of Digital Financial Inclusion: Mobile Money, Gendered Walls</i>, 1st ed., RIPE Series in Global Political Economy (Abingdon, Oxon, London: Routledge, 2020), 25, https://doi.org/10.4324/9780367179618. • Ulrich et al., “Inclusive Green Finance: From Concept to Practice,” 5.

GCS-Factor Socioeconomic Development: Diagnostic Questions	References/Sources
<p>What barriers to women’s participation in decision-making spaces limit their ability to influence how climate adaptation and resilience systems are designed and implemented? For instance, do women face any of these conditions (see also Table 38 38):</p> <ul style="list-style-type: none"> • Basic barriers: Time constraints; burdensome application processes; time timelines for communal decision-making • Legal barriers: Land/property ownership pre-requisites to leadership roles or incentive/assistance programs; community norms that bar women from leadership • Economic barriers: Educational requirements for participation in leadership (precluded by women’s low- or unpaid work that make education unaffordable); UCDW responsibilities that preclude involvement • Tokenistic positions: Allowing women’s involvement but only as tokens and not in substantively important roles 	<ul style="list-style-type: none"> • “Closing the Gender Gap in Natural Resource Management Programs in Mexico” (Washington, DC: World Bank, 2018), 49,55, https://doi.org/10.1596/31423. • Christabelle S. Moyo, “Active Participation of Rural Women in Developmental Issues: Poverty Alleviation Lessons for South Africa,” <i>Gender & Behaviour</i> 12, no. 1 (2014): 5994–6001. • Marlène Elias, Deepa Joshi, and Ruth Meinzen-Dick, “Restoration for Whom, by Whom? A Feminist Political Ecology of Restoration,” <i>Ecological Restoration</i> 39, no. 1–2 (March 2021): 3–15, https://doi.org/10.3368/er.39.1-2.3.

GCS-Factor Socioeconomic Development: Diagnostic Questions	References/Sources
National/International Security	
<p>Does your local economy have structural disadvantages for some groups that create adverse socioeconomic development conditions, which may be linked to malign activity? For instance:</p> <ul style="list-style-type: none"> • Do rates lethal violence increase and decrease along with rates of economic inequality (especially in systems with weak collective institutions and few social protections)? • Are migrants excluded from the formal economy, and if so, do they inadvertently become ‘criminals’ when they act out of a desire to survive? • Do racial tensions exclude some groups from the economy, and do rates of criminality increase among such groups? <p>If yes to any of the above, are there gender patterns to changes in malign activity?</p>	<ul style="list-style-type: none"> • Fadi Bashir Ahmad Said, “Political Marginalization of Youth as a Driver for Violent Extremism: Examining the Case of Jordan” (Master’s Thesis, Ankara, Hacettepe University Graduate School of Social Sciences, 2019), https://acikbilim.yok.gov.tr/bitstream/handle/20.500.12812/461319/yokAcikBilim_10242334.pdf?sequence=-1; Karen Heimer, “Inequalities and Crime,” <i>Criminology</i> 57, no. 3 (2019): 377–94, https://doi.org/10.1111/1745-9125.12220; Sarah Yerkes and Zeineb Ben Yahmed, “Tunisians’ Revolutionary Goals Remain Unfulfilled,” <i>Carnegie Endowment for International Peace</i> (blog), December 2018, https://carnegieendowment.org/2018/12/06/tunisians-revolutionary-goals-remain-unfulfilled-pub-77894. • Darrell Steffensmeier and Dana Haynie, “Gender, Structural Disadvantage, and Urban Crime: Do Macrosocial Variables Also Explain Female Offending Rates?,” <i>Criminology</i> 38, no. 2 (2000): 403–38, https://doi.org/10.1111/j.1745-9125.2000.tb00895.x. • Jukka Savolainen, “Inequality, Welfare State, and Homicide: Further Support for the Institutional Anomie Theory*,” <i>Criminology</i> 38, no. 4 (2000): 1021–42, https://doi.org/10.1111/j.1745-9125.2000.tb01413.x; Sang-Weon Kim and William Alex Pridemore, “Poverty, Socioeconomic Change, Institutional Anomie, and

GCS-Factor Socioeconomic Development: Diagnostic Questions	References/Sources
	<p>Homicide*,” <i>Social Science Quarterly</i> 86, no. s1 (2005): 1377–98, https://doi.org/10.1111/j.0038-4941.2005.00351.x.</p>
<p>Do socioeconomic inequalities contribute to marginalizations in the form of environmental (living in low-potential areas); economic (poor market access and low share of public expenditures); sociocultural (ethnic prejudices); or political (any combination of the above)? If so, do such exclusions from the market (especially regarding minerals, fossil fuels, and forestry resources) contribute to increased rates of tensions between societal groups or anti-state grievances?</p>	<ul style="list-style-type: none"> • Robin Mearns and Andrew Norton, “Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World,” <i>New Frontiers of Social Policy</i> (Washington, DC: The International Bank for Reconstruction and Development/The World Bank, 2010), 209, https://openknowledge.worldbank.org/bitstream/handle/10986/2689/520970PUB0EPI11C010disclosed0Dec091.pdf?sequence=1&isAllowed=y. • “Women and Natural Resources: Unlocking the Peacebuilding Potential” (United Nations Environment Programme, 2013), 15. • Mearns and Norton, “Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World,” 209, 219, 278.
<p>Are gender-transformative approaches used to reform socioeconomic policies? For instance, have barriers to property rights and empowerment based on gender or other identity factors been dismantled?</p>	<ul style="list-style-type: none"> • Mearns and Norton, “Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World,” 278.
<p>Are both women’s and men’s networks included in conflict mitigation processes regarding Socioeconomic Development?</p>	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Socioeconomic Development within a spatially explicit and time-specific setting.

Table 61. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Infrastructure.

GCS-Factor Infrastructure: Diagnostic Questions	References/Sources
Human Security	
<p>What is the general state of telecommunications, energy, transportation, and housing infrastructure in the local community in terms of quality and maintenance? What repairs and new development projects are likely to be built in the next 5-10 years?</p>	
<p>In what ways do current infrastructure components add burdens to the care economy? For instance:</p> <ul style="list-style-type: none"> • Which infrastructure systems are in best repair and/or receive the most government investment? • What is the condition of infrastructure that supports the market economy (telecommunications, production-related energy, private vehicle transportation)? • What is the condition of infrastructure that supports the care economy (housing, childcare systems, modern cooking energy systems, public transportation)? 	<ul style="list-style-type: none"> • Laura Addati and Umberto Catta, “Care Work and Care Jobs for the Future of Decent Work,” Report (Geneva: Oxfam, June 28, 2018), 154, http://www.ilo.org/global/publications/books/WCMS_633135/lang--en/index.htm. • Manuel Castells, <i>City, Class, and Power</i> (New York: St. Martin’s Press, 1978), 177–78. • Deepta Chopra and Elena Zambelli, <i>No Time to Rest: Women’s Lived Experiences of Balancing Paid Work and Unpaid Care Work</i> (Institute of Development Studies, 2017), 12, https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/13574. • Frédérique Hoffmann, Manfred Huber, and Ricardo Rodrigues, “Policies to Support Carers,” in <i>Social Indicators Research Series</i>, ed. Almudena Moreno Minguez, vol. 49 (Dordrecht, Netherlands: Springer, 2012), 243–60, https://doi.org/10.1007/978-94-007-4354-0_12.

GCS-Factor Infrastructure: Diagnostic Questions	References/Sources
<p>In what condition are energy infrastructure systems? How is energy infrastructure currently gendered? And how has climate-damaged energy infrastructure reinforced gendered hierarchies?</p> <ul style="list-style-type: none"> • Does the average household struggle with energy insecurity (inadequate or faulty infrastructure that results in service disruptions or cost challenges)? • Have journeys to collect fuel become longer due to climate change? If so, are women or men responsible to commit more time to securing energy supplies? • Has studying and learning become more difficult due to climate-damaged energy infrastructure? If so, has this impacted girls/women and boys/men equally? • Has climate increased the drudgery or health risks (air pollution, spinal injuries, burns) of food preparation due to lack of modern cooking energy? If so, has this impacted women and men equally? • Has climate-damaged energy infrastructure increased the costs of household energy? If so, has this impacted women- or men-headed household equally? • What are the most significant risks of climate-related damage to local energy systems? 	<ul style="list-style-type: none"> • Sonal Jessel, Samantha Sawyer, and Diana Hernández, “Energy, Poverty, and Health in Climate Change: A Comprehensive Review of an Emerging Literature,” <i>Frontiers in Public Health</i> 7 (2019), https://www.frontiersin.org/article/10.3389/fpubh.2019.00357. • Institute for Women’s Policy Research, “Gender, Urbanization and Democratic Governance,” 17. • Rebecca Rewald, “Energy and Women and Girls: Analyzing the Needs, Uses, and Impacts of Energy on Women and Girls in the Developing World” (Oxfam, 2017), 13–15, https://s3.amazonaws.com/oxfam-us/www/static/media/files/energy-women-girls.pdf; Maria Beatriz Orlando et al., “Getting to Gender Equality in Energy Infrastructure: Lessons from Electricity Generation, Transmission, and Distribution Projects,” Technical Paper (Washington, DC: World Bank, January 2018), 78, https://doi.org/10.1596/29259
<p>In what condition are transportation infrastructure systems? How is transportation infrastructure currently gendered? And how has climate-damaged transportation infrastructure reinforced gendered hierarchies?</p> <ul style="list-style-type: none"> • Which transportation systems receive the highest government investments: private vehicle roads or mass 	<ul style="list-style-type: none"> • Roselle Leah Rivera, “Gender and Transport Experiences of Marketplace Workers in Davao City, Philippines,” <i>Environment and Urbanization Asia</i> 1, no. 2 (November 16, 2010): 171–86, https://doi.org/10.1177/097542531000100205; Deike Peters, “Gender and Sustainable Urban Mobility. Official Thematic Study for the 2013 UN Habitat Global

GCS-Factor Infrastructure: Diagnostic Questions	References/Sources
<p>transit?</p> <ul style="list-style-type: none"> • What is the average time women and men spend commuting to and from work (both paid and unpaid work settings)? • Do women and men use human-powered transportation (walking or bicycling) equally? Or does one gender typically use such transportation systems more than the other? • How are public transportation schedules designed to support market economy work (typically 9-5 from outer neighbourhoods to the centre of town) versus the care economy (frequently off-peak hours to and from non-central locations)? • In what ways are current public transportation systems unwelcoming to women (due to gender norms that restrict their access, SGBV risks, or safety or cleanliness concerns)? • What are the most significant risks of climate-related damage to local transportation systems? 	<p>Report on Human Settlements,” Thematic Study, Global Report on Human Settlements 2013 (Nairobi: UN-HABITAT, 2011), 4, http://rgdoi.net/10.13140/RG.2.1.4746.9287.</p> <ul style="list-style-type: none"> • Mika Kunieda and Aimée Guathier, “Module 7a: Gender and Urban Transport: Smart and Affordable,” Sustainable Transport: A Sourcebook for Policy-Makers in Developing Cities (Germany: Federal Ministry for Economic Cooperation and Development, 2007), 21, https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/7aGenderUTSept300.pdf. • Reena Patel, <i>Working the Night Shift: Women in India’s Call Center Industry, Working the Night Shift</i> (Stanford University Press, 2010), https://doi.org/10.1515/9780804775502. • Torin Monahan, “Dreams of Control at a Distance: Gender, Surveillance, and Social Control,” <i>Cultural Studies ↔ Critical Methodologies</i> 9, no. 2 (April 2009): 288, https://doi.org/10.1177/1532708608321481. • Kareem Buyana and Lwasa Shuaib, “Gender Responsiveness in Infrastructure Provision for African Cities: The Case of Kampala in Uganda,” <i>Journal of Geography and Regional Planning</i> 7, no. 1 (February 28, 2014): 1–9, https://doi.org/10.5897/JGRP2013.0424. • Marjorie McGuirk et al., “Weather and Climate Change Implications for Surface Transportation in the USA,” Bulletin (World Meteorological Organization, April 2009), https://public.wmo.int/en/bulletin/weather-and-climate-change-implications-surface-transportation-usa; Tao Ji et al., “The Impact of Climate Change on Urban Transportation Resilience to Compound Extreme Events,” <i>Sustainability</i> 14, no. 7 (March

GCS-Factor Infrastructure: Diagnostic Questions	References/Sources
	25, 2022): 4, https://doi.org/10.3390/su14073880 .
<p>In what condition are digital/mobile technology infrastructure systems? How is digital/mobile technology infrastructure currently gendered? And how has climate-damaged digital/mobile technology infrastructure reinforced gendered hierarchies?</p> <ul style="list-style-type: none"> • What are women’s and men’s mobile phone or internet account ownership? • Are both women and men able to access digital/mobile technology to save time, increase safety, gain independence, access banking services, run businesses, access health services, seek legal advice, find support for SGBV survival, stay in touch with family and friends (especially during crises), or participate in civic engagement? • Is gendered cyber harassment common in the local community? • Are women discouraged from gaining access to or competence with mobile/internet technologies/spaces (including libraries, cybercafes, and telecenters)? • Are both women and men consulted in the design of mobile/internet systems? • How is climate change expected to impact local ICT infrastructure? 	<ul style="list-style-type: none"> • Santosham and Lindsey, “Connected Women: Bridging the Gender Gap - Mobile Access and Usage in Low- and Middle-Income Countries,” 12; Peters, “Gender and Sustainable Urban Mobility. Official Thematic Study for the 2013 UN Habitat Global Report on Human Settlements”; “Mobile Phones and Women’s Empowerment in Maasai Communities: How Men Shape Women’s Social Relations and Access to Phones,” <i>Journal of Rural Studies</i> 77 (July 1, 2020): 126–37, https://doi.org/10.1016/j.jrurstud.2020.04.013. • Megan Alexandra Dersnah, “Women in Political and Public Life,” Background Paper, Global Report for the Working Group on the Issue of Discrimination against Women in Law and in Practice (Geneva, Switzerland: UN OHCHR, 2013), https://essaydocs.org/women-in-political-and-public-life.html. • Sigita Strumskyte, “Gender Equality and Sustainable Infrastructure” (OECD Council on SDGs, 2019), 4, https://www.oecd.org/gov/gender-mainstreaming/gender-equality-and-sustainable-infrastructure-7-march-2019.pdf. • Mallalieu, “Women, ICT and Emergency Telecommunications: Opportunities and Constraints.” • Jonathan Woetzel et al., “Will Climate Change Cause Infrastructure to Bend or Break? McKinsey” (McKinsey Global Institute, August 19, 2020), 22, https://www.mckinsey.com/business-

GCS-Factor Infrastructure: Diagnostic Questions	References/Sources
	<p>or-break-under-climate-stress.</p>
<p>In what condition is housing infrastructure systems? How is housing infrastructure currently gendered? And how has climate-damaged housing infrastructure reinforced gendered hierarchies?</p> <ul style="list-style-type: none"> • Can women own or rent property independently of men (due to issues of propriety; lack of employment and earnings, credit, and finance; and high costs)? • What gender norms dictate whether women or men are responsible for management of the household? Do patriarchal norms dictate who makes decisions about how the household is managed (including how to build, rebuild, or prepare the home due to climate impacts)? • Are both women and men able to use their homes for income-generating activities? • How is climate change expected to impact housing stock in the local community? 	<ul style="list-style-type: none"> • Sylvia Chant, “Gender, Cities, and the Millennium Development Goals in the Global South,” <i>LSE Gender Institute</i>, New Series Working Paper, no. 21 (November 2007): 1–79. • Oyebanji Oyelaran-Oyeyinka and Lucia Kiwala, “State of Women in Cities 2012-2013: Gender and the Prosperity of Cities” (Kenya: UN-HABITAT, 2013), 44, https://unhabitat.org/sites/default/files/download-manager-files/Gender%20and%20Prosperity%20of%20Cities.pdf. • Caroline Moser, “Asset-Based Approaches to Poverty Reduction in a Globalized Context: An Introduction to Asset Accumulation Policy and Summary of Workshop Findings,” Working Paper (Rochester, NY: Global Economy and Development, Social Science Research Network, November 2006), https://doi.org/10.2139/ssrn.1011176. • Prabha Khosla, “Women and Housing: Towards Inclusive Cities” (Kenya: UN-HABITAT, 2014), 3, https://unhabitat.org/sites/default/files/download-manager-files/Women%20and%20Housing%20Book.pdf. • David Satterthwaite, “How Urban Societies Can Adapt to Resource Shortage and Climate Change,” <i>Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> 369, no. 1942 (May 13, 2011): 1762–83, https://doi.org/10.1098/rsta.2010.0350.
<p>In what ways could newly built and rebuilt infrastructure</p>	<ul style="list-style-type: none"> • Maria Teresa Gutierrez, “Women in Infrastructure Works:

GCS-Factor Infrastructure: Diagnostic Questions	References/Sources
<p>projects transform gender inequalities?</p> <ul style="list-style-type: none"> • Could women and men be included equally in designing and implementing infrastructure projects? • Could infrastructure projects be designed with the needs and practices of the care economy (and gender equality) in mind, without instrumentalizing feminist principles for the sake of market economy development? • Are both women and men impacted by displacements related to infrastructure projects? If so, could they be consulted and compensated equally? • Could infrastructure projects impact land uses, and if so, how could gendered impacts of such land use changes be avoided (especially for the women or men who rely on natural ecosystems for livelihoods, food, water, or shelter)? • Do women lack the education, literacy, or familiarity with consultation processes to participate meaningfully? If so, how could this be remedied? • Are women and men offered jobs on infrastructure equally and at equal pay? 	<p>Boosting Gender Equality and Rural Development,” Policy Brief, Gender and Rural Employment Policy Brief (ILO, 2010), https://www.fao.org/3/i2008e/i2008e05.pdf.</p> <ul style="list-style-type: none"> • Joy Clancy, “Mainstreaming Gender in the Energy Sector Training Manual,” A Training Manual (Ministry of Energy Mozambique, Embassy of Norway in Mozambique, Norad and ENERGIA International Network on Gender and Sustainable Energy, August 2012), 55, https://www.energia.org/assets/2016/09/Mozambique-Manual-Mainstreaming-Gender-in-the-Energy-Sector-Training-Manual-final.pdf. • Kabeer, “Gender, Poverty, and Inequality,” 190. • Maria Beatriz Orlando et al., “Getting to Gender Equality in Energy Infrastructure: Lessons from Electricity Generation, Transmission, and Distribution Projects,” Technical Paper, Energy Sector Management Assistance Program (Washington, DC: World Bank, January 2018), 39, https://doi.org/10.1596/29259. • Clancy, “Mainstreaming Gender in the Energy Sector Training Manual.” • Christiane Gerstter et al., “An Assessment of the Effects on Land Ownership and Land Grab on Development” (European Parliamentary Research Service, March 31, 2011), 10, https://www.ecologic.eu/11973. • Gutierrez, “Women in Infrastructure Works: Boosting Gender Equality and Rural Development”; I Sundar, “Gender Inequality in Climate Change Impacts and Gender Sensitive Climate Change Mitigation and Adaptation,” <i>Mahila Pratishtha</i> 4, no. 1 (July 2018),

GCS-Factor Infrastructure: Diagnostic Questions	References/Sources
	<p>https://www.researchgate.net/profile/Niladri-Pradhan/publication/351599476_Journal_of_Mahila_Pratishtha/links/609f65f0458515c265908f8d/Journal-of-Mahila-Pratishtha.pdf#page=183.</p> <ul style="list-style-type: none"> • Sherilyn MacGregor, Seema Arora-Jonsson, and Maeve Cohen, “Caring in a Changing Climate: Centering Care Work in Climate Action,” <i>Research Backgrounders</i> (Oxfam, 2022), 3, https://reliefweb.int/sites/reliefweb.int/files/resources/rr-caring-in-a-changing-climate-230222-en.pdf. • Raul Jimenez, “Development Effects of Rural Electrification,” <i>Policy Brief</i> (Inter-American Development Bank, January 2017), 3,8,9, https://publications.iadb.org/publications/english/document/Development-Effects-of-Rural-Electrification.pdf. • Romy Listo, “Gender Myths in Energy Poverty Literature: A Critical Discourse Analysis,” <i>Energy Research & Social Science</i> 38 (April 2018): 9–18, https://doi.org/10.1016/j.erss.2018.01.010.
National/International Security	
<p>Are systems in place to prevent government funds designated for climate-impacted infrastructure from capture by malign actors (such as organized crime groups that use shell companies to redirect state funds to their projects)? If so, are there gender differences in who is involved and why?</p>	<ul style="list-style-type: none"> • N’Dea Akei Yancey-Bragg, “Honduran Gang Used Tropical Storm Agatha to Launder Millions of Drug Money,” <i>Organized Crime and Corruption Reporting Project</i> (blog), March 20, 2017, https://www.occrp.org/en/daily/6268-honduran-gang-used-tropical-storm-agatha-to-launder-millions-of-drug-money. • Adriana E Abdenur and Lukas Rüttinger, “Risk Brief: Latin America & The Caribbean,” <i>Brief</i> (Berlin, Germany: Climate Security Expert Network & adelphi, May 2020), 17, https://climate-security-expert-network.org/sites/climate-

GCS-Factor Infrastructure: Diagnostic Questions	References/Sources
	<p>security-expert-network.com/files/documents/climate_fragility_risk_brief_latin_america_and_the_caribbean.pdf.</p>
<p>Is work on infrastructure projects designed to positively impact one or more groups over others? Or to disadvantage one or more groups more than others? Are any disadvantaged groups likely respond with violence, or be motivated by fundamentalist ideology to engage in conflicts with the government or with ‘othered’ groups? If so, are there gendered patterns in who engages in tensions or conflicts and/or why they are involved?</p>	<ul style="list-style-type: none"> • Kirby Reiling and Cynthia Brady, “Climate Change and Conflict: An Annex to the USAID Climate-Resilient Development Framework,” Technical Report (Washington, DC: USAID, February 2015), 16, https://www.usaid.gov/sites/default/files/documents/1866/ClimateChangeConflictAnnex_2015%2002%2025%2C%20Final%20with%20date%20for%20Web.pdf. • Detges, “Local Conditions of Drought-Related Violence in Sub-Saharan Africa.” • Clionadh Raleigh, “Political Marginalization, Climate Change, and Conflict in African Sahel States,” <i>International Studies Review</i> 12, no. 1 (March 2010): 69, https://doi.org/10.1111/j.1468-2486.2009.00913.x.
<p>Do new infrastructure projects offer more new jobs, greater livelihood losses, or more profound cultural changes to one or more groups more than others? If so:</p> <ul style="list-style-type: none"> • Have livelihood changes impacted more men than women? If so, has this resulted in a surplus of unemployed men (especially young men)? • Do tensions increase between groups once cash incentives for infrastructure projects are gone (leaving men without a source of income)? If yes, have non-state actors or extremist/rebel groups used related grievances to recruit unemployed males to their causes? 	<ul style="list-style-type: none"> • L. Mehta, “No Plot of One’s Own - How Large Dams Reinforce Gender Inequalities,” <i>World Rivers Review</i> 26, no. 1 (2011), https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/3876/No%20Plot%20of%20One's%20Own%20-%20L.%20Mehta.pdf?sequence=3&isAllowed=y. • Orlando et al., “Getting to Gender Equality in Energy Infrastructure,” 44. • Sikweyiya and Nkosi, “Violent Protests and Gendered Identities”; Rucht, “The Spread of Protest Politics.”

GCS-Factor Infrastructure: Diagnostic Questions	References/Sources
<p>Has infrastructure shared across borders been damaged by climate change? If so:</p> <ul style="list-style-type: none"> • Are measures being taken to minimize interstate tensions regarding such projects? • If tensions are increasing, is there a gender component for who is involved and why? • Are potential conflicts approached as opportunities for fostering joint adaptation initiatives that promote peace? 	<ul style="list-style-type: none"> • Marufa Akter, “Conceptualizing Environmental Governance on the GBM Basin,” <i>Bandung: Journal of the Global South</i> 3, no. 1 (June 30, 2016): 1–17, https://doi.org/10.1186/s40728-015-0025-7. • Osman Zeki Gökçe, Emre Hatipoglu, and Mehmet Ali Soytas, “The Pacifying Effect of Energy Dependence on Interstate Conflict: A Large-N Analysis,” <i>Energy Research & Social Science</i> 78 (August 2021), https://doi.org/10.1016/j.erss.2021.102133. • Reiling and Brady, “Climate Change and Conflict,” 17.
<p>Are women typically involved in peace negotiations regarding tensions over Infrastructure projects?</p>	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Infrastructure within a spatially explicit and time-specific setting.

Table 62. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor Corruption.

GCS-Factor Corruption: Diagnostic Questions	References/Sources
Human Security	
<p>Are climate-related mitigation and adaptation funds reviewed and audited to limit corruption? Are climate-related disaster funds scrutinized for corruption as well?</p>	<ul style="list-style-type: none"> • Michael Nest, Saul Mullard, and Cecilie Wathne, “Corruption and Climate Finance,” Brief (Chr. Michelsen Institute; U4 Anti-Corruption Resource Centre, 2020), https://www.u4.no/publications/corruption-and-climate-finance. • Gretta Fenner and Mirella Mahlstein, “Chapter 5: Curbing the Risks of and Opportunities for Corruption in Natural Disaster Situations,” in <i>International Law and Standards Applicable in Natural Disaster Situations</i>, ed. Erica Harper (IDLO, 2009), 243, https://baselgovernance.org/sites/default/files/2019-01/Corruption%20in%20natural%20disaster%20situations.pdf.
<p>Who is most likely to be at the bottom of the local socioeconomic system? Is there a gender element to such hierarchies? For instance:</p> <ul style="list-style-type: none"> • Do women lack power due to patriarchal and/or neoliberal norms and structures? • Are women or men more reliant on public support systems? • Has climate change constrained government budgets, and have austerity measures been introduced, thereby shrinking public benefit programs or increased costs for participation in such programs? If so, are women or men impacted more? 	<ul style="list-style-type: none"> • Marco Tavanti and A Stachowicz-Stanusch, “Sustainable Solutions for Human Security and Anti-Corruption: Integrating Theories and Practices,” <i>International Journal of Sustainable Human Security</i> 1 (December 2013): 1–17. • Naomi Hossain, Celestine Nyamu Musembi, and Jessica Hughes, “Corruption, Accountability and Gender: Understanding the Connections,” Asia Pacific Portal for Gender Equality (UN Women and UNDP, 2010), https://asiapacificgender.org/resources/19.

GCS-Factor Corruption: Diagnostic Questions	References/Sources
<p>And does corruption play a role in amplifying this impact?</p>	
<p>What types of extortion practices are at work in the local community due to corruption and which have increased due to climate change? For instance:</p> <ul style="list-style-type: none"> • Must people pay fees/bribes in order to access public benefit systems? If so, are women or men impacted more profoundly? • In particular, are women and men impacted equally in terms of extortion when trying to gain access to financial services or documentation (proof of identity, marriage, death, or residence), seek employment, or obtain medical services? • Do women face sexual extortion more than men? • Do women face higher risks of bribery or extortion due to a lack of education that would inform them of which practices are permitted and which are corrupt? 	<ul style="list-style-type: none"> • Hossain, Musembi, and Hughes, “Corruption, Accountability and Gender: Understanding the Connections.” • N. Blanes et al., “Mapping Controversies Gender and Corruption April 2016” (Paris School of International Affairs, 2016), 53, https://www.semanticscholar.org/paper/Mapping-Controversies-Gender-and-Corruption-April-Blanes-Bockelie/6f9c20d8a3c8da8b47708fc9630c55e3830f2f30. • Sangeetha Purushothaman et al., “Seeing Beyond the State - Grassroots Womens Perspectives on Corruption and Anti-Corruption” (New York, NY: UN Development Programme, November 15, 2015), 26, https://www.undp.org/publications/seeing-beyond-state-grassroots-womens-perspectives-corruption-and-anti-corruption.
<p>Are women perceived as more trustworthy government officials than men serving in official government roles? If so:</p> <ul style="list-style-type: none"> • Have rates of corruption in government decreased? • Have women’s needs and opinions been more effectively incorporated into government policies, including those related to climate susceptibility? • Have perceptions of government trustworthiness and/or honesty changed since women’s representation in 	<ul style="list-style-type: none"> • Monika L McDermott, “Race and Gender Cues in Low-Information Elections,” <i>Political Research Quarterly</i> 51, no. 4 (December 1998): 895–918, https://doi.org/10.1177/106591299805100403; Daniel Treisman, “What Have We Learned About the Causes of Corruption from Ten Years of Cross-National Empirical Research?,” <i>Annual Review of Political Science</i> 10, no. 1 (June 1, 2007): 211–44, https://doi.org/10.1146/annurev.polisci.10.081205.095418;

GCS-Factor Corruption: Diagnostic Questions	References/Sources
<p>government increased?</p> <ul style="list-style-type: none"> • Have improved perceptions of government increased political stability and helped to protect against institutional instability and climate susceptibility? • Might climate peacebuilding efforts be more effective due to having greater representation of women in government? 	<p>Tiffany D. Barnes and Emily Beaulieu, “Gender Stereotypes and Corruption: How Candidates Affect Perceptions of Election Fraud,” <i>Politics & Gender</i> 10, no. 03 (September 2014): 365–91, https://doi.org/10.1017/S1743923X14000221;</p> <p>“Women and Leadership: Public Says Women Are Equally Qualified, but Barriers Persist” (Washington, DC: Pew Research Center, January 14, 2015), https://www.empowerwomen.org/en/resources/documents/2015/10/women-and-leadership-public-says-women-are-equally-qualified-but-barriers-persist?lang=en.</p> <ul style="list-style-type: none"> • Laura McGrew, Kate Frieson, and Sambath Chan, “Good Governance from the Ground Up: Women’s Roles in Post-Conflict Cambodia,” Women Waging Peace Policy Commission (Hunt Alternatives Fund; The Policy Commission, March 2004), https://www.researchgate.net/profile/Laura-McGrew/publication/237288787_Good_Governance_from_the_Ground_Up_Women's_Roles_in_Post-Conflict_Cambodia/links/5f636721458515b7cf39c44e/Good-Governance-from-the-Ground-Up-Womens-Roles-in-Post-Conflict-Cambodia.pdf?_sg%5B0%5D=7Bxmv_xvHalZpyCGtluvB4hhzpwrsQ4RjybiKH1KmkPg3X88gPaa2i_aVATP6cZTSjqQyrQHxa9TIVxgaWSiCQ.itbB1-Qjit5dcVXM-u168-9RedGC9ymaX10bCgBCFhxJyfr9FB9kw-LQOp11KyV4dAcrxvUcG8_6FdrALUj3CA&_sg%5B1%5D=M94PCZ3PP3yKhELft3p_j6E68TOqRoo12tFfC2rOu2kKfrbI773gs6IStN_QizoqAyWWbkKqHOffLfp_HGqaUAYH0oU U53WYctnoi9rOppMj.itbB1-Qjit5dcVXM-u168-

GCS-Factor Corruption: Diagnostic Questions	References/Sources
	<p>9RedGC9ymaX10bCgBCFhxJyfR9FB9kw-LQOp11KyV4dAcrxvUcG8_6FdrALUj3CA&_iepl=.</p> <ul style="list-style-type: none"> • Sarah Shair-Rosenfield and Reed M. Wood, “Governing Well after War: How Improving Female Representation Prolongs Post-Conflict Peace,” <i>The Journal of Politics</i> 79, no. 3 (July 2017): 995–1009, https://doi.org/10.1086/691056.
<p>Do men also face barriers to accessing government systems due to bribes or extortion fees? If so:</p> <ul style="list-style-type: none"> • Is it more than women (in terms of percentage of income)? Do they have sufficient resources to handle bribes, and how does this compare to women’s resources? • Do men have the same level of understanding as women of how to navigate extortion systems? 	<ul style="list-style-type: none"> • Blanes et al., “Mapping Controversies Gender and Corruption April 2016,” 53.
National/International Security	
<p>Have resource constraints offered criminal groups opportunities for resource revenue capture, and has corruption played a role in making this kind of activity less likely to be prevented?</p>	<ul style="list-style-type: none"> • Ellen Messer, “Climate Change and Violent Conflict:” (Oxfam America, 2010), 83, https://s3.amazonaws.com/oxfam-us/www/static/oa3/files/climate-change-and-violent-conflict.pdf.

GCS-Factor Corruption: Diagnostic Questions	References/Sources
<p>Is there corruption within the local government systems that has hindered peacebuilding mechanisms, especially as climate change intensifies? For instance:</p> <ul style="list-style-type: none"> • Has corruption within the judiciary hindered conflict resolution, especially early on in a conflict? • Has weak rule of law combined with corruption within international banking systems that distribute social and economic development funding to fuel grievances between groups or between the public and the government? • Has natural resource-based corruption at the state level impeded peacebuilding measures with neighbouring states? 	<ul style="list-style-type: none"> • Messer, “Climate Change and Violent Conflict:,” 83. • Hanne Seter, Ole Magnus Theisen, and Janpeter Schilling, “All about Water and Land? Resource-Related Conflicts in East and West Africa Revisited,” <i>GeoJournal</i> 83, no. 1 (February 2018): 169–87, https://doi.org/10.1007/s10708-016-9762-7. • Alice Blondel, “Climate Change Fuelling Resource-Based Conflicts in the Asia-Pacific,” Background Papers Series 2012, Asia-Pacific Human Development Report (UN Development Programme, 2012), 38, https://www.uncclearn.org/wp-content/uploads/library/undp304.pdf.
<p>Are women typically involved as policymakers, as decision-makers, or in peace negotiations regarding Corruption?</p>	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor Corruption within a spatially explicit and time-specific setting.

Table 63. Diagnostic Questions for Assessing a System’s Vulnerability to GCS-Factor State Fragility.

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
Human Security	
<p>What is the state of population movements locally? Have mass population displacements increased or decreased population size in the local community? If so:</p> <ul style="list-style-type: none"> • What climate factors are increasing mass movements of people regionally? Is there a gender pattern for who is migrating and why? • Has the change in population demographics increased or decreased the strain on public services? If so, are there gender patterns to who is now accessing public benefits? • Has population displacement triggered changes to employment levels in women or men? • Have the media, public officials, or leaders of non-state groups begun to use hypermasculine rhetoric (terms such as ‘threat,’ ‘securitizing borders;’ speaking of migrants as national threats)? Or is migration viewed as an adaptation strategy borne of necessity? 	<ul style="list-style-type: none"> • Viviane Clement et al., “Groundswell Part 2: Acting on Internal Climate Migration,” Working Paper (Washington, DC: World Bank Group: Open Knowledge, September 13, 2021), xxii, https://openknowledge.worldbank.org/handle/10986/36248. • “Gender and Migration,” IOM Migration Data Portal, accessed May 10, 2022, https://www.migrationdataportal.org/themes/gender-and-migration. • Julie Maldonado, “Climate Change and Displacement: Human Rights and Local Knowledge as Guiding Principles for New Policy Initiatives,” in <i>Climate Change and Fragile States: Rethinking Adaption</i>, ed. Mohamed Hamza and Cosmin Corendea (Hohenkammer, Germany: Institute for Environment and Human Security, United Nations University, 2011), https://collections.unu.edu/eserv/UNU:1884/pdf9717.pdf. • Phudoma Lama, Mo Hamza, and Misse Wester, “Gendered Dimensions of Migration in Relation to Climate Change,” <i>Climate and Development</i> 13, no. 4 (April 21, 2021): 326–36, https://doi.org/10.1080/17565529.2020.1772708. • Delf Rothe, “Gendering Resilience: Myths and Stereotypes in the Discourse on Climate-Induced Migration,” <i>Global Policy</i>

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
	<p>8 (March 30, 2017): 40–47, https://doi.org/10.1111/1758-5899.12400.</p>
<p>In decisions regarding migration, how do the capabilities of women and men compare to one another? For instance:</p> <ul style="list-style-type: none"> • Consider how women’s and men’s education, health care, mobility, ability to work, bodily health, ability to affiliate with others, and ability to hold property compare? • Or how do they compare when you approach capabilities as including: human capital (labour), financial capital (savings), physical capital (vehicles), social capital (networks), and natural capital (such as wild foods)? • Do capabilities allow for temporary displacement following a sudden climate disaster? Are they sufficient to allow for permanent displacement in response to long-term climate breakdown? • Do push and pull factors interact with women’s and men’s capabilities differently to result in varying migration trends? 	<ul style="list-style-type: none"> • Jon Barnett and W. Neil Adger, “Mobile Worlds: Choice at the Intersection of Demographic and Environmental Change,” <i>Annual Review of Environment and Resources</i> 43, no. 1 (2018): 256–57, https://doi.org/10.1146/annurev-environ-102016-060952. • Elisabeth Meze-Hausken, “Migration Caused by Climate Change: How Vulnerable Are People in Dryland Areas?,” <i>Mitigation and Adaptation Strategies for Global Change</i> 5, no. 4 (2000): 379–406, https://doi.org/10.1023/A:1026570529614. • Clark L. Gray, “Environment, Land, and Rural Out-Migration in the Southern Ecuadorian Andes,” <i>World Development</i> 37, no. 2 (February 2009): 463, https://doi.org/10.1016/j.worlddev.2008.05.004. • Douglas S. Massey, William G. Axinn, and Dirgha J. Ghimire, “Environmental Change and Out-Migration: Evidence from Nepal,” <i>Population and Environment</i> 32, no. 2 (2010): 109–36, https://doi.org/10.1007/s11111-010-0119-8. • Wendy Annecke, “Climate Change, Energy-Related Activities and the Likely Social Impacts on Women in Africa,” <i>International Journal of Global Environmental Issues</i> 2, no. 3/4 (2002): 207–22, https://doi.org/10.1504/IJGENVI.2002.002400. • Sylvia Chant, “Households, Gender and Rural-Urban Migration: Reflections on Linkages and Considerations for

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
	<p>Policy,” <i>Environment and Urbanization</i> 10, no. 1 (April 1998): 10, https://doi.org/10.1177/095624789801000117.</p>
<p>In decisions regarding migration, how do the rights/choices of women and men compare to one another? For instance:</p> <ul style="list-style-type: none"> • Are women permitted to obtain official documentation on their own (without the permission of a male family member) necessary to cross a state border? • Do women and men have the same human rights in their destination, or have their rights been reduced as a result of the dislocation? In particular, how have women’s rights changed in terms of care responsibilities, divisions of labour, and asset control? • How has relocation changed family power hierarchies for individual households? Have women gained or lost power as a result of migration? • In cases of entire community relocation, are women meaningfully included in community decision-making regarding whether or not to move? 	<ul style="list-style-type: none"> • Laura Huber, “One Step Forward, One Step Back: The Micro-Level Impacts of Conflict and Aid on Women’s Rights” (n.d.), http://www.laurakhuber.com/uploads/8/6/6/1/86619636/huber_chapter_5.pdf. • Chant, “Households, Gender and Rural-Urban Migration.” • Gaëlle Ferrant et al., “The Role of Discriminatory Social Institutions in Female South-South Migration” (OECD Development Centre, April 2014), 9, https://www.oecd.org/dev/development-gender/SIGI%20and%20Female%20Migration_final.pdf. • Amanda Bertana, “The Role of Power in Community Participation: Relocation as Climate Change Adaptation in Fiji,” <i>Environment and Planning C: Politics and Space</i> 38, no. 5 (August 2020): 902–19, https://doi.org/10.1177/2399654420909394. • Maria Tanyag and Jacqui True, “Gender-Responsive Alternatives on Climate Change from a Feminist Standpoint,” in <i>Climate Hazards, Disasters, and Gender Ramifications</i> (London: Routledge, 2019), 17, https://doi.org/10.4324/9780429424861-2.
<p>How do the migration journey and IDP camp experiences of women and men compare? For instance:</p> <ul style="list-style-type: none"> • Do women and men both have access to safe routes and housing during their migration journeys? 	<ul style="list-style-type: none"> • Chindarkar, “Gender and Climate Change-Induced Migration.” • Mitchell, Tanner, and Lussier, ““We Know What We Need.”” • Chindarkar, “Gender and Climate Change-Induced Migration.”

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
<ul style="list-style-type: none"> • Do women face higher risks of SGBV during while migrating? Or within IDP camps? • Do women and men face similar mental health strain as a result of the migration journey (related to the precipitating climate disaster, the need to migrate, the breaking of social ties, and the responsibility to care for other family members)? • Are women and men able to access aid/support equally in their destination? Or is aid/support restricted to men heads of households? • In IDP camps, do women and men face similar household caretaking roles? Or similar camp-related duties and burdens? • Are women and men permitted equally to serve on IDP camp leadership committees? 	<ul style="list-style-type: none"> • Jenny Hedström, “4. A Feminist Political Economy Analysis of Insecurity and Violence in Kachin State,” in <i>Conflict in Myanmar: War, Politics, Religion</i>, ed. Nick Cheesman and Nicholas Farrelly (Singapore: ISEAS Publishing, 2016), 80, https://doi.org/10.1355/9789814695879-009.
<p>How does a migration journey change household composition? For instance:</p> <ul style="list-style-type: none"> • Are women or men more likely to migrate to a new region? • Do family members (elderly, children, sick individuals) follow/stay with women or men? Does the UCDW increase for the individual most responsible for family members? • Is household feminization positive or negative for women? How do marriage, land and property ownership, laws on divorce and child custody, rates of intimate partner violence (without one’s partner), and kinship systems impact whether household feminization is beneficial or harmful for women? • How do women’s and men’s experiences of household feminization compare related to poverty; intensification of social reproduction demands; health outcomes due to poor 	<ul style="list-style-type: none"> • Huber, “One Step Forward, One Step Back: The Micro-Level Impacts of Conflict and Aid on Women’s Rights,” 19; Natalie Mahmood Dyvesether, “The Effects of Internal Armed Conflict on Women’s Labour Rights” (Master’s Thesis, Oslo, University of Oslo, 2019), https://www.duo.uio.no/handle/10852/71418. • Chant, “Households, Gender and Rural-Urban Migration,” 15. • Javad Yoosefi Lebni et al., “Challenges and Opportunities Confronting Female-Headed Households in Iran: A Qualitative Study,” <i>BMC Women’s Health</i> 20, no. 1 (2020), https://doi.org/10.1186/s12905-020-01046-x. • Vikram Kolmannskog, “Climate Change, Disaster, Displacement and Migration: Initial Evidence from Africa,” <i>New Issues in Refugee Research Service (UNHCR Policy</i>

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
<p>socioeconomic status and high physical burdens; decreased mental health; and lower rates of literacy?</p>	<p>Development and Evaluation, December 2009), 11, https://digitallibrary.un.org/record/698495.</p>
<p>How do employment experiences of women and men in destination regions compare?</p> <ul style="list-style-type: none"> • Are women and men equally permitted to work in their chosen destination? • Are both women and men able to move upward within their chosen work environments? • Do either women or men face more bodily harm, fatigue, social dislocation, or debt entrapment as a result of their new employment situations? 	<ul style="list-style-type: none"> • Jeevan Raj Sharma, “Bodies in Search of Freedom: Changing Rural Political Economy and Nepal’s Marginal Migrants,” <i>Economic and Political Weekly</i> 51, no. 21 (2016): 56.
<p>Have gender transformative approaches been considered to addressing the needs of dislocated peoples? For instance:</p> <ul style="list-style-type: none"> • Could laws in destination states be re-written to offer gender equality? For instance, might laws offer increased access to education and public services, higher levels of income (and remittances sent back to families), and increased social networking and risk sharing for women? • Could wealth and land be redistributed in ways that shrinks gendered power hierarchies? 	<ul style="list-style-type: none"> • Thomas F. Homer-Dixon, “Environmental Scarcities and Violent Conflict: Evidence from Cases,” <i>International Security</i> 19, no. 1 (1994): 5–40, https://doi.org/10.2307/2539147; Jame Huang, “Can Climate Change Increase the Likelihood of State Fragility?” (Baltimore, Johns Hopkins University, 2018), https://jscholarship.library.jhu.edu/bitstream/handle/1774.2/59876/Huang%2C%20Jame.pdf?sequence=1. • Cecilia Tacoli, “Crisis or Adaptation? Migration and Climate Change in a Context of High Mobility,” <i>Environment and Urbanization</i> 21, no. 2 (2009): 513–25, https://doi.org/10.1177/0956247809342182. • Huber, “One Step Forward, One Step Back: The Micro-Level Impacts of Conflict and Aid on Women’s Rights,” 19;

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
<p>What is the current condition of input/process legitimacy rules and procedures that guide how people participate in state decisions and hold power to account? In particular:</p> <ul style="list-style-type: none"> • Do women have the same legal rights as men in terms of civil liberties? • Are civil liberty rules/procedures codified in law or part of customary practices and rules? • Have women been involved in policymaking and decision-making in local or state government? On climate-related issues? • Are women politically empowered through women’s groups, in civil society, and through political debates in general? On climate-related issues? 	<p>Dyvesether, “The Effects of Internal Armed Conflict on Women’s Labour Rights.”</p> <ul style="list-style-type: none"> • <i>The State’s Legitimacy in Fragile Situations, Conflict and Fragility</i> (Paris: OECD Publishing, 2010), 23–24, https://doi.org/10.1787/9789264083882-en. • OECD, <i>SIGI 2019 Global Report: Transforming Challenges into Opportunities</i>, Social Institutions and Gender Index (OECD, 2019), https://doi.org/10.1787/bc56d212-en. • Susan E. Rice and Steward Patrick, “Index of State Weakness in the Developing World” (Brookings, February 2008), 31, https://www.brookings.edu/research/index-of-state-weakness-in-the-developing-world/. • Sherilyn MacGregor, “A Stranger Silence Still: The Need for Feminist Social Research on Climate Change,” <i>The Sociological Review</i> 57, no. s2 (2009): 124–40, https://doi.org/10.1111/j.1467-954X.2010.01889.x. • Vincent Larivière et al., “Bibliometrics: Global Gender Disparities in Science,” <i>Nature</i> 504, no. 7479 (December 2013): 211–13, https://doi.org/10.1038/504211a; Miriam Gay-Antaki and Diana Liverman, “Climate for Women in Climate Science: Women Scientists and the Intergovernmental Panel on Climate Change,” <i>Proceedings of the National Academy of Sciences</i> 115, no. 9 (February 27, 2018): 2060–65, https://doi.org/10.1073/pnas.1710271115; Diana Liverman et al., “Survey of Gender Bias in the IPCC,” <i>Nature</i> 602, no. 7895 (February 2022): 30–32, https://doi.org/10.1038/d41586-022-00208-1; Ayesha Tandon, “Analysis: The Lack of Diversity in Climate-Science Research,” <i>Carbon Brief</i> (blog),

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	<p>October 5, 2021, https://www.carbonbrief.org/analysis-the-lack-of-diversity-in-climate-science-research.</p> <ul style="list-style-type: none"> • Simplicé Asongu, Omand O. Messo, and Keyanfe T. J. Guttemberg, “Women Political Empowerment and Vulnerability to Climate Change: Evidence from Developing Countries,” Working Paper (African Governance and Development Institute, 2021), https://www.econstor.eu/handle/10419/244185. • Lu Chen and Mette Halskov Hansen, “Gender and Power in China’s Environmental Turn: A Case Study of Three Women-Led Initiatives,” <i>Social Sciences</i> 11, no. 3 (February 2022): 97, https://doi.org/10.3390/socsci11030097.
<p>What is the current state of local input/performance legitimacy that determine state performance, effectiveness, and quality of services and goods? In particular:</p> <ul style="list-style-type: none"> • Has climate change increased demand for or strained basic services such as health care (medical, water, sanitation, and food); housing; education; access to democratic elections and institutions; legal and justice services (including police services); civil registration; as well as safety net or social service programs, such as unemployment, sickness, disability, widowhood, old age, and other livelihood securities? • How do patriarchal and traditional beliefs about gender roles, masculinities, and femininities, as well as low literacy levels, lack of exposure to politics, policy spheres, and government planning processes, and low levels of representation in institutions limit women’s access to public services, especially due to climate breakdown? 	<ul style="list-style-type: none"> • <i>The State’s Legitimacy in Fragile Situations</i>, 23–24. • Lorraine Corner and Sarah Repucci, “A User’s Guide to Measuring Gender-Sensitive Basic Service Delivery United Nations Development Programme” (United Nations Development Programme, December 17, 2015), 4, https://www.undp.org/publications/users-guide-measuring-gender-sensitive-basic-service-delivery. • Institute for Women’s Policy Research, “Gender, Urbanization and Democratic Governance,” 19.

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
<ul style="list-style-type: none"> How might lack of input/performance legitimacy erode local government and state legitimacy and potentially lead to growth in anti-state grievances? 	
<p>Does the public share a belief system that supports state legitimacy, allowing people to see the state or local government as having rightful authority? As climate breakdown intensifies, do people trust that their government is working for the public good?</p>	<ul style="list-style-type: none"> <i>The State's Legitimacy in Fragile Situations</i>, 23–24. Jagdish Thaker et al., “The Role of Collective Efficacy in Climate Change Adaptation in India,” <i>Weather, Climate, and Society</i> 8, no. 1 (January 1, 2016): 21–34, https://doi.org/10.1175/WCAS-D-14-00037.1.
<p>What shared beliefs do people share about gender equality and how might these beliefs impact state legitimacy? In particular:</p> <ul style="list-style-type: none"> Does the public believe that women and men have equal rights under the law (whether codified or customary)? Are local gender-based laws designed around patriarchal belief systems that give men more rights than women regarding divorce, child custody, inheritance, and property laws? Are the following gender-based issues legal locally: polygamy and child marriage; sexual aggression against women; gender-based imbalanced family power structures? <p>Inequity in Family Law has been shown to enhance predictions of a state's level of stability and security and may be an important factor in determining state legitimacy.</p>	<ul style="list-style-type: none"> Casey P. Hayden, “A Hierarchy of Needs in International Relations: (662112010-001)” (American Psychological Association, 2009), https://doi.org/10.1037/e662112010-001. <i>The State's Legitimacy in Fragile Situations</i>, 27. Donna Bowen, Valerie M. Hudson, and Perpetua Nielsen, “State Fragility and Structural Gender Inequality in Family Law: An Empirical Investigation,” <i>Laws</i> 4, no. 4 (October 10, 2015): 654–72, https://doi.org/10.3390/laws4040654.
<p>What is the local sense of international (state) legitimacy in terms of recognition by external actors of a state's sovereignty (which has knock-on effects for internal legitimacy)? In particular:</p> <ul style="list-style-type: none"> How does local and state government measure up to international standards for gender justice and equality? 	<ul style="list-style-type: none"> <i>The State's Legitimacy in Fragile Situations</i>, 23–24. Jacqui True, “Bringing Back Gendered States: Feminist Second Image Theorizing of International Relations,” in <i>Revisiting Gendered States: Feminist Imaginings of the State in International Relations</i>, ed. Swati Parashar and J. Ann Tickner (New York: Oxford Studies in Gender and

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
<ul style="list-style-type: none"> • Have international agencies intervened with military action or humanitarian aid to improve gender equality? Has agency presence been short-term or long-term? • Do local climate policies offer a gender lens, as required by many transnational development/funding agencies? 	<p>International Relations, 2018), 33–48, https://doi.org/10.1093/oso/9780190644031.003.0003.</p> <ul style="list-style-type: none"> • Eli Moen and Stein Sundstøl Eriksen, “Political Economy Analysis with a Legitimacy Twist: What Is It and Why Does It Matter?,” <i>GSDRC</i>, 2010, 17, https://gsdrc.org/document-library/political-economy-analysis-with-a-legitimacy-twist-what-is-it-and-why-does-it-matter/. • Anke Hoeffler, “Growth, Aid and Policies in Countries Recovering from War,” <i>OECD Development Co-Operation Working Papers</i>, OECD Development Co-Operation Working Papers (OECD Publishing, 2012), 10, https://ideas.repec.org/p/oec/dcdaaa/2-en.html. • “Gender and Climate Governance” (GSDRC, January 2017), https://gsdrc.org/topic-guides/national-climate-change-governance/building-effective-institutions-to-implement-climate-policies/gender-and-climate-governance/.
National/International Security	
<p>Has climate breakdown increased rates of migration in to or out from the region, and had a negative impact on state legitimacy? If so:</p> <ul style="list-style-type: none"> • Have criminal activities such as human trafficking increased along with increased migration? • Has migration resulted in a surplus of males in densely populated urban areas that may increase local instability? • Are migrant populations considered ‘unpalatable’ and therefore forced into criminalized categories to legitimize punishments and expulsions, and in the process, disconnect 	<ul style="list-style-type: none"> • Jessica C. Sheu et al., “Potential Impact of Climate Change on Human Trafficking: A Narrative Review,” <i>The Journal of Nervous and Mental Disease</i> 209, no. 5 (May 2021): 324–29, https://doi.org/10.1097/NMD.0000000000001312. • Hudson and den Boer, “Missing Women and Bare Branches: Gender Balance and Conflict.” • Elizabeth Stanley, “Climate Change and Migration: Managing Risks, Developing Hostilities,” in <i>Criminal Justice, Risk and the Revolt against Uncertainty</i>, ed. John Pratt and Jordan Anderson, Palgrave Studies in Risk, Crime and Society (Cham: Springer International Publishing, 2020), 217–44,

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
<p>large groups from lawful employment, public support, and legal standing?</p>	<p>https://doi.org/10.1007/978-3-030-37948-3_10.</p>
<p>Has increased migration intensified the strain on employment opportunities, natural resources, or public services, such as government provision of poverty reduction, public health, improved infrastructure, affordable foodstuffs, and improved supply chains? If so:</p> <ul style="list-style-type: none"> • Have changes to population composition restructured the social strati of various groups? • Have such changes lead to anti-state grievances or grievances between societal groups? • Have such grievances resulted in increases in demonstrations/protests? • Have such grievances resulted in increases in recruitment of individuals into non-state groups? • Have tensions or conflicts between societal groups increased as a result? • Are there gender elements to any of these trends? 	<ul style="list-style-type: none"> • Halvard Buhaug and Henrik Urdal, “An Urbanization Bomb? Population Growth and Social Disorder in Cities,” <i>Global Environmental Change</i> 23, no. 1 (February 2013): 5, https://doi.org/10.1016/j.gloenvcha.2012.10.016. • Colin Walch, “Collaboration or Obstruction? Rebel Group Behavior during Natural Disaster Relief in the Philippines,” <i>Political Geography</i>, Special Issue: Climate Change and Conflict, 43 (November 2014): 40–50, https://doi.org/10.1016/j.polgeo.2014.09.007; Lukas Rüttinger et al., “A New Climate for Peace: Taking Action on Climate and Fragility Risks, An Independent Report Commissioned by the G7 Members” (Berlin: G7 Environment, Conflict, and Cooperation, 2015), 6, http://www.newclimateforpeace.org. • Kristina Petrova, “Natural Hazards, Internal Migration and Protests in Bangladesh,” <i>Journal of Peace Research</i> 58, no. 1 (January 2021): 33–49, https://doi.org/10.1177/0022343320973741. • Guy J. Abel et al., “Climate, Conflict and Forced Migration,” <i>Global Environmental Change</i> 54 (January 2019): 239–49, https://doi.org/10.1016/j.gloenvcha.2018.12.003. • W Neil Adger et al., “Human Security of Urban Migrant Populations Affected by Length of Residence and Environmental Hazards,” <i>Journal of Peace Research</i> 58, no. 1 (January 1, 2021): 50–66, https://doi.org/10.1177/0022343320973717.

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
<p>Is there any evidence that migration trends have increased interstate tensions? In particular:</p> <ul style="list-style-type: none"> • Have climate events been sudden and intense? If so, disagreements over climate migration may not spark interstate tensions. • Has climate breakdown been gradual and long-term? If so, the relative deprivations arising from differences in adaptive capacities and a longer time period of exposure may induce heightened grievances between states. 	<ul style="list-style-type: none"> • Jacob Olufemi Fatile, O. Samson Adejobi, and Aderonke Majekodunmi, “Climate Change, Communal Conflicts and Human Security in Nigeria,” <i>Scottish Journal of Arts, Social Sciences and Scientific Studies</i> 2, no. 2 (August 2012): 32, https://www.researchgate.net/profile/Jones-Jaja/publication/263578936_Aminigo_IM_Egbezo_DEand_Jaja_JM_2012_The_Nigerian_University_System_and_the_Challenge_of_Ethnicity_Scotish_journal_of_Arts_Social_Science_and_Scientific_Studies_Vol2_Issue_11_3-13/links/02e7e53b43120ca600000000/Aminigo-IM-Egbezo-DEand-Jaja-JM-2012-The-Nigerian-University-System-and-the-Challenge-of-Ethnicity-Scottish-journal-of-Arts-Social-Science-and-Scientific-Studies-Vol2-Issue-11-3-13.pdf#page=26. • Adger et al., “Human Security of Urban Migrant Populations Affected by Length of Residence and Environmental Hazards.” • Reazul Ahsan, “Climate Induced Migration: Lessons from Bangladesh,” <i>The International Journal of Climate Change: Impacts and Responses</i> 5, no. 2 (2014): 1–16. • Reinoud Leenders, “Social Movement Theory and the Onset of the Popular Uprising in Syria,” <i>Arab Studies Quarterly</i> 35, no. 3 (July 1, 2013), https://doi.org/10.13169/arabstudquar.35.3.0273.

GCS-Factor State Fragility: Diagnostic Questions	References/Sources
Are women typically involved as policymakers, as decision-makers, or in peace negotiations regarding disagreements over climate migration or other issues related to state legitimacy?	

These diagnostic questions can be used by policymakers and practitioners to assess the gendered nature of GCS-Factor State Fragility within a spatially explicit and time-specific setting.

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