



WOMEN AND CLIMATE CHANGE



Impact and Agency in Human Rights, Security,
and Economic Development



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Cover photo–Solar engineer making a solar cooker: Knut-Erik Helle

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List of Acronyms

AIRES – Alianza Internacional de Reforestación
 ASEAN – Association of Southeast Asian Nations
 AU – African Union
 ccGAP – Climate Change Gender Action Plan
 CDC – United States Center for Disease Control and Prevention
 CEDAW – Convention on the Elimination of All Forms of Discrimination against Women
 CIF – Climate Investment Funds
 CO₂ – Carbon Dioxide
 CO₂e – Carbon Dioxide Equivalent
 COP – Conference of Parties
 EU – European Union
 GACC – Global Alliance for Clean Cookstoves
 GCF – Green Climate Fund
 GEAG – Gorakhpur Environmental Action Group
 GEF – Global Environment Facility
 GGCA – Global Gender and Climate Alliance
 GLOF – Glacial Lake Outburst Flood
 Gt - Gigatonne
 IBA – International Bar Association
 IDP – Internally Displaced Person
 IOM – International Organization for Migration
 IPCC – Intergovernmental Panel on Climate Change
 IUCN – International Union for the Conservation of Nature
 MDGs - Millennium Development Goals
 MWCT – Maasai Wilderness Conservation Trust
 OAU – Organization of African Unity
 REDD/REDD+ – Reducing Emissions from Deforestation and Forest Degradation
 SAFECO – Synergy of Congolese Women’s Associations
 SDGs – Sustainable Development Goals
 SGBV – Sexual and Gender-Based Violence
 UNFCCC – United Nations Framework Convention on Climate Change
 UNSCR – United Nations Security Council Resolution
 WASH – Water, Sanitation and Hygiene
 WEA – Women’s Earth Alliance
 WECAN – Women’s Earth and Climate Action Network International
 W - Watts
 W_p – Watt Peak
 WRI – World Resources Institute





Photo: J.L.Urrea (CCAFS)

Foreword

Climate change is one of the greatest ecological and environmental challenges of our time. It is also an incontrovertible challenge to human rights, security, and economic development. United Nations Secretary-General Ban Ki-moon has declared 2015 the year for global action on climate change. In November, the Conference of Parties 21 negotiations will take place in Paris to advance the global dialogue on climate change and necessary actions to tackle it. Moreover, the Millennium Development Goals, which were adopted by the UN in 2000 to eradicate extreme poverty, have been transformed into the post-2015 Sustainable Development Goals, which have a global scope and place a stronger emphasis on sustainability – environmental integrity, social equality, and economic prosperity – as central to human progress. As the world confronts the borderless and multidimensional effects of climate change, it is imperative that we understand the impact of climate change on women, as well as the importance of their agency in addressing its threats. At this important juncture, we hope this report will fill a critical knowledge gap and demonstrate why it is important to include women’s voices, perspectives, and participation at all levels of decision-making and all levels of adaptation and mitigation.

The impacts of climate change – drought, floods, extreme weather, increased incidence of disease, and growing food and water insecurity – disproportionately affect the world’s 1.3 billion poor, the majority of whom are women. Although women are forced to bear the brunt of the consequences of climate change, they have been systematically excluded from decision-making mechanisms and denied agency in deciding when and how to overcome the vulnerabilities they face. This is a serious omission that undermines the potential and compromises the effectiveness of even the best-intentioned efforts to address climate change. Nevertheless, women are contributing to both adaptation and mitigation efforts in many parts of the world, and they are creating innovative and localized solutions to build resilient communities. At all levels of leadership and across all sectors of society, women’s representation is not an option, but a necessity.

At the Georgetown Institute for Women, Peace and Security, one of our primary goals is to ensure that evidence-based research is accessible to practitioners and policymakers. This report identifies many key challenges posed by climate change, examines their gender dimensions, and proposes timely recommendations for a broad base of stakeholders – international decision-makers, national ministries, the private sector, and local organizations. In doing so, *Women and Climate Change: Impact and Agency in Human Rights, Security, and Economic Development* represents an interdisciplinary and seminal contribution to the existing literature.

Perhaps more than any other global challenge, climate change reminds us both of our interdependence and the need for cross-sector collaboration and the full participation of women. Health, livelihoods, the safeguarding of human rights, and the security of our collective future depend on nothing less.

AMBASSADOR MELANNE VERVEER



Executive Director
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Executive Summary

Climate change is a global challenge that burdens all of humanity, but not equally. The world's poor, the majority of whom are women, are encumbered disproportionately. The distinct impacts of climate change on men and women are exacerbated in settings that are also affected by violent conflict, political instability, and economic strife. As the world struggles to grapple with rapid onset disasters as well as respond to slower degradation caused by climate change, it is critical to ensure that the plight of women is firmly on the agenda of concerns, and that women – from different backgrounds – are able to lead in negotiations and participate in the design and implementation of programs.

This report comes at an important time of international observance when new commitments to action will be made, coinciding not only with the fifteenth anniversaries of UN Security Council Resolution 1325 (UNSCR 1325) and the adoption of the Millennium Development Goals (MDGs) in 2000, but also in anticipation of the Conference of Parties (COP) 21 conference in Paris in late 2015. In an effort to remedy the dearth of existing literature on women and climate change, this report makes an important contribution by covering a wide variety of issues; highlighting both impact and agency; mapping examples of solutions that have proven to be successful; and holding relevance to policy-makers, practitioners, scholars, and students. The findings of the report are based on and buttressed by a thorough examination of international conventions and protocols; national action plans; journal articles and other scholarly publications; reports by government and multilateral agencies; policy briefs and guidance notes, as well as civil society reports. The analysis is also informed by and draws upon a series of consultations with experts from around the world in research, advocacy, program design and implementation, and global leadership positions. As a result, the study represents an interdisciplinary endeavor with far-reaching practical applicability.

The report frames climate change as a universal human rights imperative, a global security threat, and a pervasive economic strain. Cataloguing the effects of climate change, the study examines the gendered dimensions of sea level rising and flooding; deforestation and ocean acidification; water scarcity; energy production and energy poverty; and climate-related displacement and migration. As part of this analysis, the report not only identifies how women are strained differentially and severely by the effects of climate change, but also how women have, continue to, and could serve as agents of mitigation and adaptation. For example, the section on water scarcity details how climate change causes droughts and soil erosion, which not only disenfranchises women farmers, who are the majority of the agricultural workforce in Africa and elsewhere, but also undermines hygiene and sanitation, affecting maternal health, women's economic productivity, and girls' education. Similarly, the section on energy identifies the gendered health, economic, and human security consequences of unmet energy needs of families that lack access to affordable and dependable energy sources. It also highlights the solutions that are working, such as the work of Grameen Shakti to provide clean, renewable energy to rural communities in Bangladesh, in doing so building a new cadre of women solar engineers and technicians.

The responsibility for addressing climate change falls on multilateral institutions, states, civil society, and the business community. Each of these stakeholders must lead in their respective arenas and work across sectors to forge partnerships and foster collaboration through efforts that are sensitive to the needs and experiences of women, as well as attuned to their capabilities and potential. Greater connectivity is necessary between international, national, and local levels, but, at the same time, it is important to recognize that the mere presence of women does not guarantee that women's experiences and leadership will be integrated into climate change policies and protocols. While greater inclusion of women at the highest levels of decision-making related to climate change is necessary, it is not sufficient. Women must also be able to lead at the national and municipal levels, just as the perspectives and initiatives of civil society women must be brought into the fore. Attention to lessons-learned and the exchange of ideas are important not only across borders, but also within countries. To this end, the report provides a set of recommendations that seek to enhance the efficacy of climate change policies and programs by introducing gender-sensitive reforms to the current agenda.





“Around the world, women tend to be marginalized from political and economic power and have limited access to financial and material resources — particularly in conflict-affected, post-conflict, or less economically developed settings — which can exacerbate their vulnerability to the impacts of climate change.”

Introduction

Climate change¹ is a threat to global peace, security, and prosperity. To date, however, much of the focus of international policymakers and institutions has been confined to the arenas of science and the economy. While climate change is certainly an environmental phenomenon that necessitates scientific research and innovation, it is also a *security, economic development, and human rights* imperative.

In all three of these areas, women – who constitute half the world’s population – bear severe gendered impacts of climate change² without equal representation in decision-making or policy and programmatic design. The differential impacts of climate change on men and women are, demonstrably, more pronounced in settings that are also affected by violent conflict, political instability, and economic strife. Women and men are shaped by the societies in which they live, and societal expectations affect the roles both women and men play in the political, economic, and social spheres. This means that women and men often do different work, have differentiated access to resources and information, and experience natural disasters differently. Around the world, women tend to be marginalized from political and economic power and have limited access to financial and material resources — particularly in conflict-affected, post-conflict, or less economically developed settings — which can exacerbate their vulnerability to the impacts of climate change. As this report examines, efforts to mitigate³ the effects of climate change and prevent its acceleration present unprecedented challenges, but, simultaneously, there are important opportunities worth seizing to enhance women’s empowerment and promote gender equality. The existing literature on climate change largely overlooks the peace and security implications of climate change and specifically lacks a comprehensive discussion of the gendered impacts of climate change. This report explores these under-researched areas to highlight the gaps in the existing knowledge resources, and also identifies areas for potential research and discussion in the future.

While women face unique and sometimes disproportionate burdens as a result of climate change, they are not merely victims. To the contrary, women are also agents with important perspectives and indigenous knowledge, which can inform and influence solutions to address climate change. In many communities around the world that are already acutely affected by climate change, women are having to adapt⁴ their lives to survive and care for their dependents. As Tarja Halonen, former President of Finland stated, “[Women] are powerful agents whose knowledge, skills and innovative ideas support

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- 1 “Climate change’ means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.” *UN Framework Convention on Climate Change* (UNFCCC), art. 1, May 9, 1992, 1771 U.N.T.S. 107, accessed Aug. 7, 2015 https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.
 - 2 ‘Climate change impacts’ are the “effects of *climate change* on natural and *human systems*. Depending on the consideration of *adaptation*, one can distinguish between potential impacts and residual impacts: **potential impacts**: impacts that may occur given a projected change in climate, without considering adaptation; **residual impacts**: the impacts of climate change that would occur after adaptation.” “Appendix I: Glossary E-O,” *Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability, IPCC Fourth Assessment Report*, 2007, accessed Aug. 7, 2015 http://www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessglossary-e-o.html.
 - 3 ‘Mitigation’ refers to “human interventions to reduce the emissions of greenhouse gases by sources or enhance their removal from the atmosphere by ‘sinks,’” which are “forests, vegetation, or soils that can reabsorb CO₂,” “Fact sheet: The need for mitigation,” *UNFCCC*, last modified Nov. 2009, https://unfccc.int/files/press/backgrounders/application/pdf/press_factsh_mitigation.pdf.
 - 4 “‘Adaptation’ refers to “adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change.” “FOCUS: Adaptation,” *UNFCCC*, 2014, accessed Aug. 18, 2015, <http://unfccc.int/focus/adaptation/items/6999.php>.



the efforts to combat climate change.”⁵ They are not just bystanders, nor simply beneficiaries of assistance. And yet, there is a wide chasm between the women who are most adversely affected⁶ by the consequences of climate change, especially among the poor, and international leaders who control the resources and hold the decision-making power to address climate change. While climate change negotiations are often centered on “common but differentiated responsibilities” and “respective capacities,” the inclusion and support of women is a universal imperative.

The findings and analysis here suggest that greater attention to gender-related perspectives is critical to increasing the effectiveness of climate change policies and programs around the world. The international community must better understand the different, and similar, ways in which men and women experience the effects of climate change, and also ensure that women’s voices are represented at international, national, and subnational negotiations. This is urgent in order to realize the transformative potential – whether in humanitarian, environmental, political, or socioeconomic spheres – of climate change policies and programs.

At the same time, more synergy is necessary between civil society, governmental, intergovernmental, and private sector initiatives that seek to address the threats posed by climate change. Evidence and experience demonstrate that although women may be very active in climate change-related activities as part of civil society, non-governmental, or local community-level enterprises, they are typically relegated to the sidelines of formal and high-level processes.⁷ In addition to not tapping the talents of women, high-level processes fail to be inclusive and take into consideration the needs and aspirations of those most vulnerable to and endangered by climate change.

Why Now?

Climate change is undermining the enjoyment of human rights, especially of the people on the front-line of the climate crisis who have contributed least to the causes of climate change. Climate justice links human rights and development to achieve a people-centered approach to the climate crisis - safeguarding the rights of the most vulnerable and sharing the burdens and benefits of climate change and its resolution equitably and fairly.⁸ The inclusion and consideration of women and their needs is not simply a moral right, but also a smart and strategic approach to address climate change.

While high-level discussions about climate change have historically been dominated by the issues of national pollution and industrial concerns, which are certainly critical, identifying and enacting effective mitigation and adaptation measures will depend on the consideration of gender-based vulnerabilities and the participation of women. UN Secretary-General Ban Ki-moon declared 2015 the

5 Tarja Halonen, “Gender Equality Must be Incorporated into All Matters Connected to Climate Change,” *Equal Climate*, accessed Aug. 18, 2015, <http://www.equalclimate.org/en/background/President+of+Finland,+Tarja+Halonen%3A+Gender+equality+must+be+incorporated+into+all+matters+connected.9UFR-rYYk.ips>.

6 ‘Adverse effects of climate change’ refers to “changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.” UN Framework Convention on Climate Change (UNFCCC), art. 1, May 9, 1992, 1771 U.N.T.S. 107, accessed Aug. 18, 2015, https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

7 Mayesha Alam et al., *The United Arab Emirates Panel Series on Women, Peace and Security* (New York: Permanent Mission of the United Arab Emirates to the United Nations; Georgetown Institute for Women, Peace and Security, 2015).

8 Email correspondence with H.E. Mary Robinson, September 7, 2015.



year for global action on climate change. Additionally, this year marks three key anniversaries related to women's empowerment, economic development, and creating a peaceful world:

- Twenty years since the adoption of the Beijing Platform for Action on gender equality, which reinforced women's rights as human rights, at the 1994 Fourth UN World Conference on Women;
- Fifteen years since the adoption of historic UNSCR 1325, which recognized the unique and disproportionate impact of armed conflict on women, as well as their agency in promoting peace and security; and
- Fifteen years since the adoption of the MDGs to eradicate extreme poverty, which are now being transformed into the post-2015 Sustainable Development Goals (SDGs) and agenda.

As the international community commemorates these anniversaries, it is important to pause and reflect on progress made, as well as to strategize thoughtfully about the unfinished work that lies ahead. Climate change, a cross-cutting global issue, is relevant to all three of the aforementioned frameworks. The international community should draw upon the guidelines encapsulated in the Beijing Platform for Action, the SDGs, and the full package of Women, Peace and Security Resolutions⁹ to address climate change in ways that uplift women and men, undo inequalities, and bolster societies. The SDGs, which pertain to the future of every nation, provide a broader framework for improving human development indicators that are inextricably linked to protecting the environment and promoting women's socioeconomic well being. The UNSCR 1325 framework on women, peace and security provides a useful lens through which to address climate change as a global security threat. At the same time, the Beijing Platform for Action remains relevant to "enabling women to manage their resources and secure their livelihoods," which in turn, "provides the greatest return on investment for both conservation and development goals."¹⁰

At the COP21 negotiations in Paris later this year, delegates will shape the dialogue about climate change and frame the agenda for global action. They should seize this opportunity to open a place on the agenda and at the table to recognize the unique experiences, vulnerabilities, perspectives, and capabilities of women. This is an opportunity to build on small steps taken by past COP negotiations and to place women firmly as stakeholders and decision-makers in climate change mitigation and adaptation processes. This is also an historic moment for considering and supporting women's involvement in climate change mitigation and adaptation at the international, national, and local levels. Women are among the most vulnerable to the effects of climate change, but also demonstrably capable to lead adaptation.

Climate Change: An Overview

The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to other natural climate variability that has been observed over comparable time periods."¹¹

Climate change is a process that manifests in a number of ways, including a rise in average temperatures; changes in rainfall patterns leading to floods, droughts, and, in some areas, desertification;

9 S.C. Res. 1820 (June 19, 2008), S.C. Res. 1888 (Sept. 30, 2009), S.C. Res. 1889 (Oct. 5, 2009), S.C. Res. 1960 (Dec. 16, 2010), S.C. Res. 2106 (June 24, 2013), S.C. Res. 2122 (Oct. 18, 2013). See "Women, peace and security," *UN Peacekeeping*, accessed Aug. 17, 2015, <http://www.un.org/en/peacekeeping/issues/women/wps.shtml>.

10 "Why Women," *New Course*, accessed Aug. 17, 2015, <http://anewcourse.org/why-women/>.

11 UNFCCC 1992, accessed Aug. 17, 2015, https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.





extreme and unpredictable weather patterns leading to more numerous and intense natural disasters; and the melting of glaciers and the polar ice-caps, resulting in rising sea-levels and coastal erosion, leaving low-lying areas uninhabitable.¹²

Climate change impacts, especially rapid-onset events, may result in death, injury, or damage to health through an increase in infectious diseases, physical and mental stress, and the loss of medicinal plants and biodiversity. The global effects of climate change will negatively impact communities at multiple levels, threatening the security, economic, and human rights conditions of people around the world. Women are disproportionately burdened by these processes, but they also have the capacity to lead adaptation and create more resilient¹³ communities.

A Universal Human Rights Imperative

Climate change is fundamentally an issue of human dignity, and is, therefore, inseparable from human rights. Mary Robinson, UN Special Envoy for Climate Change, speaking as President of The Mary Robinson Foundation—Climate Justice argues, “The human cost of global warming has a name: climate injustice.”¹⁴ As a serious threat to the full enjoyment of human rights, climate change is connect-

12 United Nations High Commissioner for Refugees, *Climate Change, Natural Disasters, and Human Displacement: A UNHCR Perspective* (UNHCR, Aug. 14, 2009), accessed Aug. 17, 2015, <http://www.unhcr.org/4901e81a4.html>.

13 ‘Resilience’ refers to “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.” “Terminology,” *UN Office for Disaster Risk Reduction*, Aug. 30, 2007, <http://www.unisdr.org/we/inform/terminology>.

14 Mary Robinson, “International law is coming up short in its response to climate change,” *The Guardian*, Jan. 9, 2015, <http://www.theguardian.com/sustainable-business/2015/jan/09/mary-robinson-law-coming-up-short-climate-change>.

[Women] are powerful agents whose knowledge, skills and innovative ideas support the efforts to combat climate change.

H.E. Tarja Halonen, former President of Finland

ed to many of the principles enshrined in the 1948 Universal Declaration of Human Rights, although the term ‘climate change’ was not coined until years later. Flavia Pansieri, UN Deputy Commissioner for Human Rights, explains, “A human-rights-based approach allows us to identify the most pressing needs of individuals in a highly inequitable global society, with greatly differing social, environmental and economic levels of development.”¹⁵

The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), adopted in 1979, provides an insightful framework for linking climate change with the protection of women from harms caused by climate-related vulnerabilities, and the advancement of gender equality, including women’s ability to lead alongside men in pursuit of sustainable solutions.¹⁶ This notion aligns closely with the 1995 Beijing Platform for Action, which does not explicitly mention climate change, but holds relevance to climate change through an emphasis on women’s decision-making and protection of the environment.¹⁷ In the SDGs, gender is integrated into the goals, and gender equality serves as a key theme throughout the agenda. Moreover, the relationship between climate change and women’s empowerment is reinforced from a security standpoint in the framework for UNSCR 1325. As the International Bar Association (IBA) noted in a 2015 report on the relationship between international law and climate change, “Gender equity is also an essential element of climate change justice...As climate change accelerates migration and displacement, women in particular are subject to abuse and deprivation.”¹⁸

Climate change will challenge states’ and communities’ ability to protect human rights and the dignity of the individual. According to the IBA, “this fundamental justice concern is exacerbated by the fact that climate change will strain the ability of many states, especially the poorest among them, to uphold their human rights obligations.”¹⁹ As societies struggle to maintain political, economic, and social

15 “Climate change impacts enjoyment of human rights,” *UNHCR*, Feb. 17, 2015, <http://www.ohchr.org/EN/NewsEvents/Pages/Climatechangeimpactsenjoyment.aspx#sthash.0Z2DFaPR.dpuf>.

16 CEDAW defines discrimination against women as “any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field.” Convention on the Elimination of All Forms of Discrimination against Women, art. 1, Dec. 18, 1979, 1249 U.N.T.S. 13, <http://www.ohchr.org/Documents/ProfessionalInterest/cedaw.pdf>.

17 The Beijing Platform for Action called for women’s participation at all levels of decision-making processes as well as women’s representation in various government and ministerial bodies, which would include women’s participation in decision-making bodies focused on climate change. See “Platform for Action,” *UN Fourth World Conference on Women*, Beijing, 1995.

18 International Bar Association Climate Change Justice and Human Rights Task Force, *Achieving Justice and Human Rights in an Era of Climate Disruption* (London: International Bar Association, 2014): 47.

19 *Ibid.*, 2.



rights in the face of significant, and often unpredictable, climate change impacts, societies will become less secure and more vulnerable to natural hazards.

A Global Security Threat

Climate change threatens to deepen tensions within societies and undermine the means of peaceful conflict prevention and resolution in affected societies. Already affecting billions of people, climate change has the potential to exacerbate conflict – especially over limited natural resources – and increase political instability. Shifting physical and social environments influence how communities distribute resources and settle conflicts. Individuals are likely to face threats to their lives and security, as they are impacted by natural disasters, resource scarcity, and displacement.

In these situations, women are often among the most vulnerable, as they are typically excluded from decision-making bodies and may not be considered when determinations are made. The paradigm of *human security*, which broadens the traditional conceptualization of security as only a concern of states and militaries to place greater emphasis on individuals and societies, is highly relevant to addressing climate change as a threat to security. It also underpins the Women, Peace and Security agenda, and is resonated throughout the UNSCR 1325 framework and subsequent resolutions, as well as other policy developments, including National Action Plans on the subject. Barnett and Adger note in their examination of the relationships between climate change, human security, and war, “The gendered division of labour in most countries also makes women the first to suffer from the direct and indirect depredations wrought by violent conflict.”²⁰

Although much more research is necessary to define the correlation and potential causal links between climate change and violent conflict, important lessons on the plight of women in wartime can be drawn upon to better understand how climate change as a threat to peace and human security could make women increasingly insecure. Historical evidence demonstrates, for example, that women face specific gender-based vulnerabilities during armed conflict, such as sexual violence and loss of property, when communities disintegrate and resources become scarce. Domestic violence also spikes during times of intense sociopolitical and economic pressure induced by conflict. Women and children comprise the majority of displaced populations, and when normal life is disrupted, women have to take on new and added responsibilities to keep families and communities intact, especially if men are engaged in combat.

In a seminal 2007 report,²¹ the German Advisory Council on Global Change identified four key variables that are likely to cause violent conflict, political upheaval, and humanitarian crises in the future: food insecurity, natural disasters, water scarcity and migration due to environmental factors. All of these are inextricably linked to climate change. The regions most likely to be affected, according to the report, are the Middle East, North Africa, Central Asia, the Pacific Rim, and the Mediterranean, in addition to specific countries such as Bangladesh, which are already acutely affected by climate change. These regions and countries, identified as the most vulnerable to instability, are also those where gender gaps are persistent across different social development indicators, including health, education, political participation, and economic participation.

Scheffran argues, “while much of the research on climate change is aimed at predicting the future, historical records may provide clues to better understand the interaction between climate and security.”²² One quantitative study, for example, focused on the relationship between changes in temperature, food security, and outbreak of violent conflict in Europe, China, and the Global North in the last millenni-

20 Jon Barnett and W. Neil Adger, “Climate Change, Human Security and Violent Conflict,” *Political Geography* 26 (2007): 644.

21 *World in Transition: Climate Change as a Security Risk* (German Advisory Council on Global Change, May 29, 2007): accessed Sept. 20, 2015, http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/hauptgutachten/jg2007/wbgu_jg2007_kurz_engl.pdf.

22 Jürgen Scheffran, “Climate Change and Security,” *Bulletin of the Atomic Scientists* 64, no. 2 (2008): 19.



...poverty is characterized not only by a lack of economic income, but also by the inability to live a long and healthy life, to have full access to knowledge, to enjoy a decent standard of living and to participate in the richness of the social, cultural and economic life of a community.

United Nations Development Programme

um. The authors found that famine, war, and population growth are affected by changes in climate, but Scheffran notes that the risks and impacts highlighted in study's findings "pale in comparison with the climate change expected within the coming decades and centuries." In other words, without the necessary forethought, cooperation, and active engagement, the humanitarian and political consequences of climate change could be devastating and spread across multiple regions. States with weak institutions and governing structures are particularly susceptible to disorder, violence, and instability induced by climate stress.

A Pervasive Economic Strain

Although climate change is a borderless phenomenon that affects the entire planet, its consequences affect certain people and places more than others. Those most severely impacted by climate change are the poorest of the poor living in the Global South, of whom women comprise the majority.²³ Women make up an average of 43 percent of the global agricultural workforce,²⁴ with women farmers producing as much as 90 percent of the African continent's food supply;²⁵ failing to address women's needs in climate change policy threatens global food security.²⁶ Skinner notes that because women and girls are predominantly in charge of unpaid household chores and caregiving in less economically developed countries and especially in rural communities, "their lives are directly affected by the changes brought about by climate change."²⁷ Their domestic duties can require more time as a result of climate-related water shortages, reduced mobility, deforestation, or other effects described in this report, meaning less time is available for schooling or paid work.²⁸ During the past decade, the percentage of women who live in poverty has increased. The United Nations Development Programme claims, "poverty is characterized not only by a lack of economic income, but also by the inability to live a long and healthy life, to have full access to knowledge, to enjoy a decent standard of living and to participate in the richness of the social, cultural and economic life of a community."²⁹

Climate change worsens the cycle of poverty and vulnerability for women and girls. Women are more likely than men to die during and in the aftermath of disasters, and women's socioeconomic margin-

23 "Gender Equality and UNDP," *United Nations Development Programme* (April 2009): 1.

24 Food and Agriculture Organization, *The State of Food and Agriculture* (2014): 35.

25 Karla D. Maass Wolfenson, *Coping with the food and agriculture challenge: smallholders' agenda* (FAO, July 2013): 22.

26 Trish Glazebrook, "Women and Climate Change: A Case-Study from Northeast Ghana," *Hypatia* 26, no. 4 (Fall 2011): 763.

27 Emmeline Skinner, *Gender and Climate Change Overview Report* (BRIDGE, Institute of Development Studies, Nov. 2011): 2.

28 Irene Dankelman, "Human Security, Climate Change and Women," *UN Chronicle* (2009): 52.

29 *Resource Guide on Gender and Climate Change* (United Nations Development Programme, 2009): 28.



...when a destitute mother starts earning an income, her dreams of success invariably center around her children...money entering a household through a woman brings more benefits to the family as a whole.

Muhammad Yunus, Nobel Peace Laureate and founder of the Grameen Bank

alization increases their vulnerability after natural disasters.³⁰ For those women who do survive the impacts of natural disasters and climate change-related events, adjustment to their new circumstances may be difficult. Women often lack legal assets and rights to property, which leaves them few resources with which to rebuild their lives. Livelihood scarcity leaves women to head households without the social stature or material resources to do so, and as women travel greater distances to collect the resources to support themselves and their families, they are more prone to attack and abuse.³¹ These factors perpetuate the cycle of poverty and the continued marginalization of women.

As a cross-cutting issue, climate change intersects with population growth, human mobility, urbanization, and food, water, and energy insecurity, all of which increase the vulnerability of women. In order to reduce the likelihood of reinforcing existing inequalities, it is important that policies and programs targeting climate change mitigation take into account the power dynamics between men and women at national and international levels, as well as their differential access to resources within communities. At the same time, by focusing on capacity-building to augment women's opportunities, climate change initiatives can also boost women's economic participation and bolster growth. Capacity-building efforts can promote women's knowledge of issues and ability to take leadership or decision-making positions, which in turn leads to changing social norms and outcomes, and increased economic growth. Research shows that women invest up to 90 percent of their income - 30 to 40 percent higher than men³² - on the well-being of their families. Muhammad Yunus, Nobel Peace Laureate and founder of the Grameen Bank, notes, "when a destitute mother starts earning an income, her dreams of success invariably center around her children...money entering a household through a woman brings more benefits to the family as a whole."³³ Promoting women's economic empowerment is also one of the most effective ways to improve human development indicators.³⁴

The next chapter of this report explores the myriad consequences of climate change, explains their gendered impacts, and highlights innovative solutions for or led by women.

30 Eric Neumayer and Thomas Plümper, "The gendered nature of natural disasters: the impact of catastrophic events on the gender gap in life expectancy, 1981-2002," *Annals of the Assoc. of American Geographers* 97, no. 3 (2007).

31 Dankelman, "Human Security, Climate Change and Women", 52.

32 "Creating Opportunities for Women," *Unilever*, 2015, accessed Sept. 25, 2015, <https://www.unilever.com/sustainable-living/transformational-change/creating-opportunities-for-women/>.

33 Muhammad Yunus, *Banker to the Poor: Micro-Lending and the Battle Against World Poverty* (New York: Public Affairs, 2008), 70.

34 For more information on Human Development Indicators, see: <http://hdr.undp.org/en/content/human-development-index-hdi>.



I. Various Manifestations of Climate Change and Their Gendered Impacts

Climate change manifests itself in a variety of ways; rapid-onset events may destroy property, lives, and livelihoods in a single day, while slow-onset processes change the landscape for survival gradually over time. These are not disparate processes. Both rapid-onset and slow-onset climate change impacts are occurring at the same time, and these impacts are interrelated, creating a cycle of vulnerability for women. This section of the report examines the gendered impacts of a range of manifestations of climate change and how women are distinctly or disproportionately threatened by these impacts. This section also highlights ways in which women are already leading mitigation and adaptation efforts.

Sea Level Rise and Flooding

Flooding and sea level rise destroy crop production and cause sanitation problems, which seriously affect women's ability to provide resources for themselves and their families. Projections by the Intergovernmental Panel on Climate Change indicate that during the twenty-first century, global warming will continue and will accelerate, estimating a temperature increase of three degrees Celsius by 2100. Increasing temperatures intensify the hydrologic cycle,³⁵ causing dry regions to become drier and wet regions to become wetter.³⁶

Sea Level Rise

Sea level rise occurs as a result of the thermal expansion of the ocean, and through the melting of glaciers and ice sheets caused by rising atmospheric temperatures. On average, global sea levels rose at a rate of approximately 1.7 mm (+/-0.3mm) per year from 1950 to 1992, and at an average rate of approximately 3.3 mm (+/-0.4 mm) per year from 1993 to 2009. Sea level rise can cause salinization of soil and reduced crop yields in cultivated areas, drinking water impairment from salinity intrusion into coastal aquifers, inundation and erosion of coastal ecosystems, loss of fish habitat and reduced fish production, damage to coastal infrastructure, and loss of territory.³⁷



Coastal cities are increasingly at high risk from sea level rise and corresponding flood damage. A 2005 study estimates the average cost of global flood damage to be US\$52 billion per year by 2050, with cities such as Guangzhou, China; New Orleans, United States; Guayaquil, Ecuador; Ho Chi Minh City,

35 The hydrologic cycle, also known as the natural water cycle, describes the continuous movement of water on, above, and below the surface of the Earth. "The water cycle," *U.S. Geological Survey*, last modified Aug. 7, 2015, <http://water.usgs.gov/edu/watercycle.html>.

36 "Slow Onset Events: Technical Paper" (United Nations Framework Convention on Climate Change, November 26, 2012): 9, accessed Sept. 26, 2015, <http://unfccc.int/resource/docs/2012/tp/07.pdf>.

37 *Ibid.*, 8.





Solutions designed to slow down and mitigate the effects of climate change also offer critical opportunities for job creation, which can help women move forward in industries and occupations to which they may have previously lacked access.

Vietnam; and Abidjan, Ivory Coast among the most vulnerable.³⁸ Additionally, the anticipated risk by 2050 increases the most for cities without a high level of risk today. In Alexandria, Egypt; Barranquilla, Colombia; Naples, Italy; and Sapporo, Japan, sea level rise and other effects of climate change are expected to increase the level of flood risk dramatically.³⁹

In Cotonou, Benin, in West Africa, sea level rise is increasing the risk of the resurgence of endemic tropical diseases as a result of the development of breeding grounds for anopheles mosquitoes, which spread malaria, and tsetse fly larvae, which have adapted to salt water. This may lead to an increase in cardiovascular and cerebral diseases related to high saline levels in the water, which could increase mortality rates, especially among pregnant women, children and elderly people. Salinity in drinking water has been found to be associated with gestational hypertension in coastal communities. In low-income countries, hypertensive disorders can cause maternal and perinatal death; coastal populations of low-income countries are disproportionately affected by the increasing salinization of water.⁴⁰ These conditions have the potential to exacerbate the poverty and precarity for local residents. Simply put, sea level rise threatens livelihoods and ecosystems, both on land and at sea.

Women in Senegal are working to address the consequences of sea level rise, including the salinization of rice fields.⁴¹ This issue particularly affects women, who are the main cultivators of rice. In Joal-Fadiouth, south of Dakar, national and local governments, institutions, NGOs, and organizations, including Dynamique Femmes - a local women's association - collaborated to construct a 3,300-meter anti-salt dyke to reclaim lands affected by saline water intrusion. This dyke has revitalized rice-growing activities, and has regenerated natural vegetation and promoted biodiversity recovery.⁴² Projects such as this demonstrate that women, who are the most adversely affected by climate change, can also be catalysts for combating and adapting to new climate realities. Solutions designed to slow down and mitigate the effects of climate change also offer critical opportunities for job creation, which can help women move forward in industries and occupations to which they may have previously lacked access.

Flooding

A warmer climate and the associated increased climate variability will increase the risk of floods. Up to 20 percent of the world's population lives in river basins that are likely to be affected by increased flood hazard, with the rise of global temperatures, by the 2080s. For example, Bangladesh - a country that already experiences frequent extreme flooding and is one of the most vulnerable to climate change due to its geography - is projected to experience an increase in flooding by almost a third, with a global temperature rise of two degrees Celsius.⁴³ Flooding is exacerbated by glacial retreat, particularly in Bangladesh and Nepal.⁴⁴ When glaciers melt, glacial lakes are formed within the Himalayas. The rate of glacial retreat has increased in the 20th century, meaning glacial lakes themselves have expanded in size. Disturbances around the lake dams, caused by rockslides and avalanches from the glacier, can

38 When cost is measured as a percentage of city GDP. Stephane Hallegatte et al., "Future flood losses in major coastal cities" *Nature Climate Change*, 3 (2013): 803.

39 Hallegatte et al., 804.

40 A. E. Khan et al., "Salinity in drinking water and the risk of (pre)eclampsia and gestational hypertension in coastal Bangladesh: a case-control study," *PLOS One* (2014).

41 Sally Brown et al., "Sea-Level Rise and Impacts in Africa, 2000 to 2100," *University of Southampton School of Civil Engineering and the Environment* (2011): 11-12.

42 "Adaptation to Coastal Erosion in Vulnerable Areas in Senegal," *The Adaptation Fund and Centre de Suivi Ecologique*: 6, accessed Aug. 17, 2015, http://unfccc.int/files/adaptation/cancun_adaptation_framework/adaptation_committee/application/pdf/session_4_cse_senegal_eng.pdf.

43 "Floods and Droughts," *IPCC Fourth Assessment Report: Climate Change 2007* (Intergovernmental Panel on Climate Change, 2007): accessed Sept. 25, 2015, https://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch3s3-4-3.html.

44 Tanvir Dewan, "Societal Impacts and Vulnerability to Floods in Bangladesh and Nepal," *Weather and Climate Extremes*, 7 (2015): 37.



trigger glacial lake outburst floods (GLOF), which cause an enormous release of water.⁴⁵ GLOF events have caused significant damage to both human lives and infrastructure, specifically in the mountainous regions of the Himalayas in Nepal and the northern region of Bangladesh.⁴⁶ Floods cause loss of life, an increase in disease, loss or destruction of property, and damage to agricultural production. These effects increase the vulnerability of the entire population affected, and communities often face food scarcity and an increased likelihood of water-borne diseases, such as diarrhea, cholera, typhoid, and skin rashes, in the aftermath of a flood. Floods also cause unemployment, as people are displaced from their places of residence and employment.⁴⁷

Women confront particular challenges after flooding, and may face more severe vulnerability because of various circumstantial and structural factors. In their study of women in Bangladesh impacted by floods, Azad, Hossain, and Nasreen found that nearly 61 percent of those surveyed were evicted from their normal dwellings in times of severe floods, and the sanitation facilities of 21 percent were damaged. They also found that 89 percent of the women surveyed became ill from wearing wet clothing, since they did not have adequate spare clothing.⁴⁸ Women are also susceptible to sexual and other harassment - such as mental torture, verbal abuse, and domestic violence - in the wake of a flood. In Bangladesh, Azad, Hossain, and Nasreen found that 35 percent of the women surveyed were harassed by a male relative or acquaintance in the aftermath of flooding due to increased stress and social disruption.⁴⁹ Floods, like other rapid-onset natural disasters, upend normal life, increase crime, and destroy essential resources such as preserved fuel wood that is often collected by women from far distances.⁵⁰

There are many existing programs that recognize the adverse effects of flooding on women, and work to engage women in mitigation and adaptation in the face of this issue. For example, in 2011, the Gorakhpur Environmental Action Group (GEAG) and the Women's Earth Alliance (WEA) launched a year long India Women, Food Security, and Climate Change Training Program. Through this program, grassroots women farmers and NGO field workers from four flood-affected states worked together to develop action plans to enhance the resilience of women farmers to the effects of climate change, including increased flooding. The trainees then sought to implement these adaptation and mitigation strategies in their respective regions, leading to thousands of women farmers being trained in and adopting climate change-adaptive farming techniques.⁵¹ GEAG is also working on a project to address flooding with small-scale women farmers belonging to marginalized communities by developing women-led sustainable flood and climate change-resilient livelihood systems.⁵²

45 "An Overview of Glaciers, Glacier Retreat, and Subsequent Impacts in Nepal, India and China," *World Wide Fund for Nature*, (2005), accessed Sept. 25, 2015, https://www.wwf.or.jp/activities/lib/pdf_climate/environment/Overview_of_Glaciers.pdf.

46 Dewan, 37. Ives et al., "Formation of Glacial Lakes in the Hindu Kush-Himalayas and GLOF Risk Assessment," *International Centre for Integrated Mountain Development*, May 2010, accessed Sept. 25, 2015, http://www.unisdr.org/files/14048_ICIMODGLOF.pdf.

47 Abu Kalam Azad et al., "Flood-Induced Vulnerabilities and Problems Encountered by Women in Northern Bangladesh," *International Journal of Disaster Risk Science* 4, no. 4 (2013): 191-193.

48 *Ibid.*, 193-94.

49 *Ibid.*

50 *Ibid.*, 191-93.

51 "Women, Food Security and Climate Change: Building Women Farmers' Solidarity and Capacities," *Women's Earth Alliance and Gorakhpur Environmental Action Group*, (2012): accessed Sept. 25, 2015, <http://www.womensearthalliance.org/downloads/GEAG%20training%20report.pdf>

52 "Flood resilient livelihood system with special focus on women farmers," *Gorakhpur Environmental Action Group*, (2014): accessed Sept. 25, 2015, <http://www.geagindia.org/project/Flood-resilient-livelihood-system-with-special-focus-on-women-farmers.aspx>.



Deforestation and Ocean Acidification

Individuals and communities around the world rely on natural resources found in forests and coastal areas for subsistence and shelter. Forests and coral reefs provide food, water, and medicinal and cultural resources, and their destruction threatens the livelihoods and health of the communities that depend on those materials. Forests and coral reefs serve similar roles for communities who depend on the resources found in these natural environments, providing foundational support for entire regions. As these resources diminish, food insecurity and livelihood instability grow. Women often serve as the managers of household resources, and their burdens are likely to become significantly heavier as they must find new sources of food and resources to support their families, travelling farther and spending more time addressing the resources scarcity.

Deforestation

Deforestation occurs as a result of land-use change and can be driven by heat, drought, illegal logging, resources extraction, agricultural production, or as communities begin to cut down trees when other resources have been depleted. During periods of limited rainfall, soil dries out; heavier rainfall results in greater and more rapid runoff, increasing flooding and erosion. These processes reduce the productivity of the land, leading to declining food production and crop yields.⁵³ The runoff carries sediments and pollutants to downstream bodies of water, damaging water quality and leading to overbank flooding. In coastal areas, the increased siltation of river deltas from upstream erosion, combined with the destruction of mangroves, reefs and other natural breakwaters, has increased exposure to storm surges and seawater intrusion into coastal aquifers.⁵⁴ These effects in turn harm communities, as discussed in the flooding and sea level rise sections of this report. When trees and ecosystems are lost, a significant flux of CO₂ is released into the atmosphere, increasing carbon emissions.



As forests are cut down, the loss of tree cover increases soil erosion, decreases agricultural productivity, and increases the burden of gathering forest resources and water. Many people in rural areas depend on forests for food, firewood, fiber timber, material for crafts, animal fodder, and medicinal herbs, and it is often women who collect these resources. As a result of deforestation, women must work harder to secure resources and feed their families. Deforestation is currently affecting livelihoods across Africa, especially in Tanzania, Sudan, Cameroon, Kenya, and Mali, where women and children collect 60 to 80 percent of all domestic firewood supplies in Africa.⁵⁵ In Zanzibar, Tanzania, as trees are cut down to make room for clove tree plantations, women must travel greater distances to gather firewood, and poor households spend up to 40 percent of their income on fuel.⁵⁶

The Global Commission on the Economy and Climate posits that restoring 12 percent of degraded agricultural land could boost small landholders' incomes by as much as US\$40 billion per year and ability to feed 200 million people per year within 15 years. Restoring land increases resilience to weather shocks and reduces greenhouse gas emissions by nearly two gigatonnes (Gt) of carbon dioxide equivalent (CO₂e) per year. Initiating forest restoration of at least 350 million hectares by 2030, meanwhile, could generate US\$170 billion per year in net benefits from watershed protection, improved crop yields, and forest products. This would also sequester between one and three Gt of CO₂ per year,

53 "Slow Onset Events: Technical Paper" (United Nations Framework Convention on Climate Change, 2012): 10-11, accessed Sept. 25, 2015, <http://unfccc.int/resource/docs/2012/tp/07.pdf>.

54 *Ibid.*

55 Filomina Chioma Steady, "Women, Climate Change and Liberation in Africa", *Race, Gender and Class* 21, no. 1 (2014): 3.

56 *Ibid.*



Women are also susceptible to sexual and other harassment - such as mental torture, verbal abuse, and domestic violence - in the wake of a flood.

depending on the areas restored.⁵⁷ Protection of land and afforestation have the potential to positively impact the lives of communities and women around the world, while helping to mitigate the effects of climate change.

The Green Belt Movement, a Kenyan environmental and women's rights organization initially led by Nobel Laureate Wangari Maathai, has operated since 1977 to respond to the needs of rural Kenyan women who endured limited access to water and long treks to gather firewood for fuel. Today run by Maathai's daughter Wanjira, the Green Belt Movement brings women together to grow seedlings and plant trees to bind the soil, store rainwater, and provide food and firewood. The women also receive a small monetary token for their work.⁵⁸ Since its founding, the Green Belt Movement has planted over 51 million trees, helping to protect and restore Kenya's forests. This program not only addresses climate change, but also creates jobs, increases income for women, and improves water and food security.⁵⁹



Another interesting program is Reducing Emissions from Deforestation and forest Degradation (REDD), which provides incentives to individuals predominantly in the Global South for their conservation efforts, planting forests and creating carbon “sinks” to absorb carbon emissions usually emitted in the Global North. The REDD+ program goes even further, including conservation, sustainable forest management, and the enhancement of forest carbon stocks under its program purview.⁶⁰ However, REDD is a market mechanism, and has the potential to exacerbate existing gender inequalities. Skinner notes in a report on gender and climate change that while REDD enables wealthy countries to trade off their carbon emissions by paying less-developed countries to conserve forests, “the commercialisation of previously free natural resources” adds to the marginalization of poor people without land rights – a majority of whom are women – who would otherwise, “depend on products from the forests for their livelihoods but rarely benefit from the economic incentives.”⁶¹ Women have less access to formal education than men in many developing countries, making it much harder for women to engage in technical and legal negotiations or to have sufficient education to benefit significantly from REDD projects. REDD+ seeks to help reform land tenure and land use policies to allow women to own or have more equitable access to forest resources.⁶² In order to ensure that women are not negatively impacted, international negotiations and implementation of REDD and REDD+ must account for

57 *Better Growth, Better Climate: The New Climate Economy Report*, (The Global Commission on the Economy and Climate, 2014): 91, accessed Sept. 25, 2015, <http://2014.newclimateeconomy.report/>.

58 “Who We Are”, *The Green Belt Movement* (2015), accessed Sept. 25, 2015, <http://www.greenbeltmovement.org/who-we-are>.

59 *Integrating Climate Action and Communities Using the Landscape Approach Lessons from the Green Belt Movement* (Green Belt Movement, 2014): 2-6, accessed Sept. 25, 2015, http://www.greenbeltmovement.org/sites/greenbeltmovement.org/files/GBM%20Report%202014_0.pdf.

60 “UN-REDD Programme”, accessed Sept. 25, 2015, <http://www.un-redd.org/aboutredd>

61 Skinner, *Gender and Climate Change Overview Report*, 3.

62 Email correspondence with Maggie Roth, IUCN (31 Aug 2015).



women's full participation and integration in national and international policymaking, and in the different applications of REDD and REDD+.⁶³

Women are also working to combat the negative environmental and socioeconomic effects of deforestation. In Democratic Republic of Congo, the Women's Earth and Climate Action Network International (WECAN) is partnering with the Synergy of Congolese Women's Associations (SAFECA) to raise awareness on deforestation, and to empower local indigenous women to adapt to and mitigate the impacts of deforestation. WECAN and SAFECA run training programs to discuss reforestation techniques and sustainable practices among local women, who then implement and disseminate those practices in their communities.⁶⁴ Similarly, in Mali, the Sinsibere cooperative, a group of 300 women from a village south of Bamako, is working to combat local deforestation and develop resilience to climate change. While the sale of firewood is an important source of income for rural women, woodcutting leads to deforestation and desertification.⁶⁵ Sinsibere seeks to combat these issues by providing environmental education and alternative livelihoods for women, setting up micro-credit systems, and providing training in other trades.⁶⁶ Thanks to the project, women in at least six villages have completely given up commercial woodcutting and selling, while more than a thousand other women have found new trades.⁶⁷ Another example can be found in Iztapa, Guatemala, where women farmers have partnered with the Alianza Internacional de Reforestación (AIRES) to plant and farm trees, preventing soil erosion and promoting carbon sequestration. Through this partnership, women have planted more than 150,000 trees in Iztapa, contributing to the reforestation of the region's mountain slopes. The partnership also collaborated to build more than 800 energy-efficient brick stoves, which use half the amount of firewood as traditional fires – further combatting deforestation – and prevent the pulmonary problems that result from the use of traditional smoky fires.⁶⁸ These examples of women-led solutions not only buttress community resilience against climate change, but they also provide financial independence to women, increase standards of living, and help to grow local economies.

Ocean Acidification

Ocean acidification refers to changes in ocean chemistry that occur as a result of carbon dioxide (CO₂) emissions. The oceans absorb about one quarter of the carbon dioxide released into the atmosphere every year. The CO₂ absorbed by the oceans makes seawater more acidic, interfering with the formation of the hard parts of corals and some shellfish, which destroys tropical reefs. Tropical reefs support

63 "Resource Guide on Gender and Climate Change," 63.

64 "Democratic Republic of Congo Climate Women Take On Deforestation & Clean Energy Needs," *WECAN Int'l* (2015), accessed Sept. 25, 2015, <https://wecaninternational.wordpress.com/2015/05/30/democratic-republic-of-congo-climate-women-take-on-deforestation-clean-energy-needs/>; "Women for Forests and Fossil Fuel/Mining/Mega-Dam Resistance," *WECAN Int'l*, accessed Aug. 14, 2015, <http://wecaninternational.org/pages/forests-fossil-fuel-resistance>.

65 "The gender, energy & environment department," *Mali Folkecenter*, accessed Aug. 14, 2015, http://www.malifolkecenter.org/lowersection/Dep2_GEE/dep2_GEE_intro.html; "Sinsibere project," *Mali Folkecenter*, accessed Aug. 14, 2015, http://www.malifolkecenter.org/lowersection/Dep2_GEE/dep2_GEE_sinsibere.html.

66 "Sinsibere — Combating desertification with women's sustainable livelihoods," *Ministry for Foreign Affairs of Finland* (2013), accessed Sept. 25, 2015, <http://formin.finland.fi/public/default.aspx?contentid=287057&contentlan=2&culture=en-US>.

67 "Tuuli Kaskinen & Johanna Togola, 1e prix Finlande 2010 [Sinsibere]," *Fondation Yves Rocher* (2015), accessed Sept. 25, 2015 http://www.yves-rocher-fondation.org/fr/fr/terre_de_femmes/les_laureates/details/6262/.

68 "Women Farmers in Guatemala: Engaging in Agro-Forestry," *United Nations Framework Convention on Climate Change* (2014), accessed Sept. 25, 2015, http://unfccc.int/secretariat/momentum_for_change/items/7843.php.



an estimated 25 percent of marine fish species, and provide food and livelihood for nearly 500 million people worldwide.⁶⁹

Increased sea surface temperatures produce coral “bleaching,” a condition that occurs when warm waters cause coral polyps to expel the symbiotic algae that give them color. Nearly 30 percent of warm water sea coral in the Caribbean Sea have disappeared since the beginning of the 1980s, and it is estimated that more than 15,000 kilometers of shoreline in the Caribbean could experience a 10 to 20 percent reduction in wave and storm protection by 2050 as a result of reef degradation. Many coastal communities depend on fisheries and on the tourism benefits of coral reefs, so the loss of reefs would have significant economic and biodiversity impacts.⁷⁰ Given that more than one billion of the world’s poor rely on fish and seafood as a primary source of protein - and that demand is expected to only increase due to continuing population growth - ocean acidification poses a substantial threat to food security.⁷¹ Diminishing production at local fisheries thus has multiple negative consequences; as fish and seafood become less available, many families and communities may also have fewer socioeconomic resources to replace these cheap and easily accessible food sources in their diet. The effects of ocean acidification on women have been understudied, but as food resources dwindle and livelihoods are threatened, women are often responsible for finding replacement resources and may receive a disproportionately small share of those resources.

Both deforestation and ocean acidification severely damage livelihoods, and threaten the ability of families and communities to provide for themselves. As the food, water, and other resources in forests and coastal areas decline, individuals - usually women - must find new ways to gather the resources necessary for survival. Women may also be well positioned to lead adaptation efforts alongside men, and it is important to include women in decision-making and promote their participation in combatting the effects of deforestation and ocean acidification.

Water Scarcity



Climate change negatively impacts water supplies around the world. Changes in temperature patterns, rainfall, solar radiation, and winds are increasing the desertification of land. Prolonged periods without adequate rainfall cause droughts, which then result in a shortage of water.⁷² In Latin America, for example, severe water shortage problems have already been identified in Bolivia, Colombia, Ecuador, and Peru.⁷³ Additionally, the combination of higher temperatures and lack of water in the soil can decrease crop productivity. It is projected that tropical forests, especially in South America, will be replaced by savannas if there is an increase in regional temperatures by one to two degrees Celsius.⁷⁴ Water

scarcity can also lead to the depletion of crops and deterioration of soil properties. The impacts of desertification and drought can include the loss of livelihoods and the displacement of populations from one degraded ecosystem zone to another.⁷⁵ For example, desertification of pastoral lands causes

69 “Slow Onset Events: Technical Paper” (United Nations Framework Convention on Climate Change, 2012): 9-10, accessed Sept. 25, 2015, <http://unfccc.int/resource/docs/2012/tp/07.pdf>.

70 *Ibid.*, 9.

71 Matthew Huelsenbeck, “Ocean-based Food Security Threatened in High CO₂ World,” *Oceana*, (2012), accessed Sept. 25, 2015, http://oceanacidification.co.uk/pdf/1acid_final_091812-pdf.pdf

72 The United Nations Convention to Combat Desertification (UNCCD) defines desertification as “land degradation in arid, semi-arid, and dry sub-humid areas.” Convention to Combat Desertification, art. 1, Sept. 12, 1994, 1954 U.N.T.S. 3, accessed Sept. 25, 2015, <http://www.unccd.int/Lists/SiteDocumentLibrary/conventionText/conv-eng.pdf>.

73 “Slow Onset Events: Technical Paper”, 10.

74 *Ibid.*, 9.

75 *Ibid.*, 11.



“Women, who comprise the majority of the global agricultural workforce – including between 45 and 80 percent in developing countries – must adapt to increased instances of drought and desertification.”

the death of livestock used to till the fields and forces those communities to find other mechanisms for tilling their land, which inevitably affects farming outputs.

Agricultural Production

Women, who comprise the majority of the global agricultural workforce – including between 45 and 80 percent in developing countries⁷⁶ – must adapt to increased instances of drought and desertification. When there is water scarcity in rural settings, men tend to leave their communities to search for employment outside of cultivating crops.⁷⁷ Women become the heads of households and assume responsibilities traditionally assigned to men, but often do not have the same authority, decision-making power, or access to community services, education, or financial resources.⁷⁸ They may also be undercut by discriminatory laws and customs that prevent them from being able to acquire, own, and retain land or other assets, such as livestock. During the 2011 drought in Kenya, for example, men migrated away from rural communities with livestock in search of water and pasture, and women were left in charge of households with very few resources. This led to an increase in petty trade and prostitution, which also increased their risk of contracting HIV/AIDS. In Kenya, women were not allowed to make the decision to sell or slaughter livestock without the permission and supervision of men in these pastoral communities; they had to wait for men to return, which left them in precarious food and economic security conditions.⁷⁹

Both drought and desertification can serve as a trigger for famine when compounded with other factors, such as dependence on importation of food sources, significant changes in the price of food, or security concerns that prevent the transport of food sources to parts of a country.⁸⁰ Hunger and malnutrition leave people physically weak, which reduces productivity. Children are especially susceptible to malnutrition caused by hunger and must reduce their workload, which is usually spent

76 Note: Variation is due to regional differences. *The State of Food and Agriculture: Innovation in Family Farming*, (Food and Agriculture Organization of the United Nations, 2014), <http://www.fao.org/3/a-i4040e.pdf>. See “Women, Gender Equality and Climate Change: Fact Sheet,” *UN Women*, 2009, accessed Sept. 25, 2015, http://www.un.org/womenwatch/feature/climate_change/downloads/Women_and_Climate_Change_Fact-sheet.pdf.

77 John Abuya, “How the Drought Affects Women,” *ActionAid USA* (2011), accessed Sept. 25, 2015, <http://www.actionaidusa.org/2011/07/how-drought-affects-women>. See Wilfred Tichagwa, “The Effects of Drought on the Condition of Women,” *Focus on Gender* 2, no. 1 (1994): 20-21.

78 *Gender and Desertification: Making Ends Meet in Drylands*, (United Nations International Fund for Agricultural Development, 2010): 2.

79 Abuya, “How the Drought Affects Women”.

80 Daniel Maxwell & Merry Fitzpatrick, “The 2011 Somalia Famine: Context, Causes and Consequences,” *Global Food Security* 1 (2012): 5.



“In many communities around the world where dependable irrigation is a distant dream and clean water a precious commodity, women and girls bear the primary burden of finding water.”

assisting their mothers with collection of natural resources. Women assume this burden in addition to their other daily household tasks.⁸¹

Access to Clean Water

Lack of access to clean drinking water also disproportionately impacts women. In many communities around the world where dependable irrigation is a distant dream and clean water a precious commodity, women and girls bear the primary burden of finding water. What they are able to carry on their heads and shoulders is then rationed carefully for drinking, cooking, cleaning and other basic needs. Globally, women and children collectively spend 140 million hours per day collecting water for their families and communities, resulting in lost productive potential.⁸² This is time not spent working at income-generating jobs, caring for family members, or attending school.⁸³ In sub-Saharan Africa, women and girls collectively spend a total of 40 billion hours per year collecting water for their households.⁸⁴ Traveling long distances to search for water, especially in remote areas, also increases the risk of sexual violence for women and girls. This is particularly true in countries marred by violent conflict, such as South Sudan and Democratic Republic of the Congo, where instances of rape and abduction during water-fetching trips have been documented for years.⁸⁵ Facilitating better access to clean water can not only help reduce the incidence of rape and abduction, but also help fulfill the productive potential of women previously lost of water collection, which could instead be realized in educational attainment and economic participation.⁸⁶

Socioeconomically conscious scientific research is making important headway to increase accessibility to clean drinking water in impoverished communities. One recent example, invented by a team of international researchers, is the creation of a ‘drinkable book,’ which uses treated paper that contains nanoparticles of silver or copper to kill 99 percent of bacteria in water.⁸⁷ Instructions on the importance of water filtration and how to use the book are written on the pages themselves in both English and the local language. Each page can clean up to 100 liters of water, meaning that one person can

81 Wilfred Tichagwa, “The Effects of Drought on the Condition of Women,” *Focus on Gender* 2, no. 1 (1994): 20-21; See “Women & Hunger: 10 Facts,” *World Food Program* (2015).

82 *Progress on Drinking Water and Sanitation: 2014 Update* (World Health Organization and UNICEF Joint Monitoring Programme, 2014); *Global Costs and Benefits of Drinking-Water Supply and Sanitation Interventions to Reach the MDG Target and Universal Coverage* (World Health Organization, 2012); *Progress on Sanitation and Drinking-Water: 2010 Update* (WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation, 2010), accessed Sept. 25, 2015, <http://www.unicef.org/eapro/JMP-2010Final.pdf>.

83 *Progress on Sanitation and Drinking-Water: 2010 Update* (WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation, 2010): 29, last accessed Sept. 25, 2015, <http://www.unicef.org/eapro/JMP-2010Final.pdf>.

84 Ruti Levtoy et al., *State of the World's Fathers* (MenCare, 2015): 81, last accessed Sept. 25, 2015, http://sowf.s3.amazonaws.com/wp-content/uploads/2015/06/08181421/State-of-the-Worlds-Fathers_23June2015.pdf.

85 “Women in South Sudan: ‘They Attack Us at Toilets or Where We Collect Water,’” *The Guardian*, September 11, 2014; “UN Say 3,600 Raped in Congo by Military or Rebels,” *The Associated Press*, April 9, 2014.

86 Ruti Levtoy et al., *State of the World's Fathers*, 29.

87 Jonathan Webb, “Bug-killing Book Pages Clean Murky Drinking Water,” *BBC News*, August 16, 2015.



Globally, women and children collectively spend 140 million hours per day collecting water for their families and communities, resulting in lost productive potential.

filter their water supply for four years with one ‘drinkable book.’ Dr. Teri Dankovich developed the product at McGill University and conducted successful trials using contaminated water sources in South Africa, Ghana, and Bangladesh.⁸⁸ Trials continue to determine if the book is capable of removing protozoa or viruses from water in addition to bacteria. This type of simple tool provides a relatively cheap alternative to traditional water filtration systems that is user-friendly with an added purpose of improving literacy and education. This is particularly important for women and girls who make up the majority of the world’s illiterate, which is exacerbated in conflict-affected and impoverished settings.⁸⁹



Another example of innovative but user-friendly solutions comes from P&G, a multinational manufacturer of household products, where a Purifier of Water was developed in collaboration with the U.S. Center for Disease Control and Prevention (CDC). The purifier is a small sachet of powdered ingredients that make contaminated water potable, using a coagulant and a disinfectant. Clinical studies conducted with the CDC and John Hopkins University show that P&G packets reduced the incidence of diarrhea on average by 50 percent. Since 2004, more than 500 million packets, enough to purify five billion liters of water, have been provided to people on a not-for-profit basis. P&G has committed to saving one life every hour in the developing world by delivering more than two billion liters of clean drinking water each year by 2020, significantly reducing the rate of water-borne disease and subsequently allowing women to spend less time caring for sick family members.⁹⁰

Health and Sanitation

In 2015, more people are likely to have access to a mobile phone than a toilet.⁹¹ Modern sanitation and hygiene facilities remain rare throughout most developing countries, especially among the urban and rural poor. Water scarcity compromises hygiene, particularly for women and girls, who may need it for purposes uncommon to men, especially during pregnancy and menstruation. Lack of adequate access

88 *Ibid.*

89 *Ibid.*

90 “Safe Drinking Water”, P&G Health Sciences Institute, accessed Sep. 25, 2015, <http://www.pghsi.com/pghsi/safewater/>.

91 Mayesha Alam, *Women on the Frontlines of Water Insecurity* (Washington, D.C.: Georgetown Institute for Women, Peace & Security, 2015).





to safe water and sanitation is a key factor in maternal and child mortality, and is dramatically more pronounced in rural settings susceptible to the effects of climate change.⁹²

At the same time, urban communities are not immune to climate change-related water insecurity, including as a result of shifts in temperature and rainfall patterns. Significant increases in temperature, anywhere between two and six degrees Celsius, create ‘urban heat islands,’ which are areas where the temperature is notably higher than the surrounding rural areas.⁹³ In regions that are already in dry zones, the creation of urban heat islands results in shortages of clean water, and increases the likelihood of contracting a vector-borne disease, such as malaria or dengue fever, as is the case in many parts of India.⁹⁴ Poor women are more likely to bear the brunt of these types of health problems due to their limited access to health facilities, low awareness of risks, and social and cultural norms that make women primary caregivers for family members.⁹⁵ Lack of access to clean water for personal hygiene disproportionately affects women and girls, yet they continue to be excluded from the creation and management of WASH programming.⁹⁶ The exclusion of the voices of women and girls in WASH program development means their needs are often overlooked. In order to address this, India’s Total

92 Thérèse Mahon and Maria Fernades, “Menstrual Hygiene in South Asia: A Neglected Issue for WASH Programmes,” *Gender & Development* 18, no. 1 (2010): 102-103.

93 *UNFPA State of World Population 2007: Unleashing the Potential of Urban Growth* (UNFPA, 2007): 59, accessed Sept. 25, 2015, http://www.unfpa.org/sites/default/files/pub-pdf/695_filename_sowp2007_eng.pdf

94 “Slow Onset Events: Technical Paper,” 9.

95 *Gender, Climate Change and Health* (World Health Organization, 2014): 3, accessed Sept 25, 2015, http://apps.who.int/iris/bitstream/10665/144781/1/9789241508186_eng.pdf?ua=1.

96 WASH programming focuses on access to clean water, health, and sanitation. See “UNICEF Water, Sanitation, and Hygiene”, accessed Sept. 25, 2015, http://www.unicef.org/wash/index_43084.html.



As climate change-induced migration becomes more common, it will be necessary for the international community to come to a consensus about the rights of environmental migrants, and determine best practices for providing protection to those fleeing.

Sanitation Campaign seeks to provide access to better sanitation facilities in the country and has successfully created women's sanitary complexes with latrines and bathing facilities, including establishing toilets for girls in school.⁹⁷

Climate-Related Migration & Displacement

Climate change will markedly affect the security and livelihoods of people around the world. In the hope of finding safer environments, more stable economic opportunities, and long-term adaptation solutions, individuals and families will move, whether voluntarily, displaced forcibly by the impacts of climate change, or as part of planned relocation. As the world becomes more mobile, it is important to understand the impacts that these different types of migration will have on women.

The decision to move is influenced by many factors, and climate change-related vulnerabilities may only be one determinant of this choice, especially in the absence of a rapid-onset event. It is difficult to isolate a single cause of displacement, as the decision always entails a mixture of push and pull factors – reasons for people to leave one area and to choose to move to another. The economic, political, and social factors of a specific case shape the decision to migrate, in combination with environmental factors. It is important to consider these determinants, as political decisions may have exacerbated or mitigated the environmental situation, and thus the decision to migrate.⁹⁸ In other cases, it is not a choice at all, as governments may pressure communities to move before they are affected by climate change, or some individuals may become trapped and cannot leave an area.

Displacement and Voluntary Migration

Climate change has the potential to create massive displacement. This scale of displacement will have serious effects on the political, economic, and social fabric of communities around the world. While migration is an important form of adaptation, and may offer many individuals and families the opportunity to secure better homes, livelihoods, and access to resources, there may be serious risks associated with climate change-induced migration, especially for women.

Women and children comprise the overwhelming majority of the world's current displaced population, and although most have been forced to flee due to conflict, the risks they would face due to climate change-induced displacement are comparable. Migration and displacement are often very dangerous for women and girls. In order to reach a country where they can seek asylum, many must rely on smugglers, resort to desperate measures, and endure perilous routes. Women and adolescent girls may be forced to trade sex with border guards and others in return for permission to pass, and they face a greater risk of being trafficked for sex work and other types of bonded labor.⁹⁹ Climate

97 Mahon and Fernades, 101.

98 Joseph Kweku Assan and Therese Rosenfeld, "Environmentally Induced Migration, Vulnerability and Human Security: Consensus, Controversies, and Conceptual Gaps for Policy Analysis," *Journal of International Development* 24, no. 8 (2012): 1049-50.

99 *UNHCR Handbook for the Protection of Women and Girls* (United Nations High Commissioner for Refugees, Jan. 2008): 8, accessed Sept. 25, 2015, <http://www.unhcr.org/47cfa9fe2.html>.



change impacts often extend across borders, meaning that families may migrate multiple times as the affected area expands, and with each migration, women and girls may face new or continued risks.

Women may also spend years in displacement, living in camps, integrating into urban areas or working in remote areas. The current average duration for displacement is 17 years, and most refugees fleeing conflict or natural disasters do not reside in camps but rather urban dwellings.¹⁰⁰ Climate change has no clear end and will not be resolved by a single negotiation or treaty. People displaced by climate change-related events may have no way to return to their place of origin. In refugee and internally displaced person (IDP) camps, women have no access to employment opportunities, lack privacy, and have limited participation in decision-making processes. Sexual and gender-based violence (SGBV) is known to be prevalent in camps, including domestic violence.¹⁰¹ Women who settle in urban areas often live with the threat of arrest and deportation and may lack identification papers, because they had no such proof to being with or because their proof is destroyed during a disaster. Women and girls are often attacked as they venture outside for water or firewood. As the financial resources of families dwindle, adolescent girls are forced to marry at increasingly younger ages. While displaced, trading sex for money or precious resources may be the only way some women are able to support themselves and their families.¹⁰²

Despite these risks, voluntary migration can be a positive and effective strategy for adaptation. For many people, migration is an important — albeit desperate — strategy to escape a difficult environment and find more stable livelihoods, a safer community, and greater access to resources.¹⁰³ Voluntary migration may also benefit communities of origin, as they receive remittances from the diaspora, increasing their resilience and ability to address future climate change-related events. Destination communities may also benefit from the skills and knowledge of the migrants.¹⁰⁴ The implications and potential of migration as an effective adaptation strategy have largely been overlooked in the climate change literature, and COP21 is an important opportunity to solidify this conceptualization of migration. While migration may create risks for women and girls, it also provides significant opportunities for individuals and families to act in their own best interest and secure safer, healthier, and more resilient lives.

Legal Protections for Environmental Migrants

Under current international legal frameworks, those who do migrate have very little protection. “Climate refugees” are not recognized under existing international humanitarian law. “Climate-induced displacement”, however, is understood to exist in a variety of situations whereby environmental hazards and processes of change associated with climate change can reasonably be said to have contributed to the movement of individuals away from an area for any period of time, without implying direct or exclusive causality.¹⁰⁵

The International Organization for Migration (IOM) defines environmental migrants as:

“Persons or groups of persons who, for compelling reasons of sudden or progressive change in the environment that adversely affects their lives or living conditions, are obliged to leave their

100 *Ibid.*, 8-10.

101 *Ibid.*

102 *Ibid.*

103 Susan F. Martin, “Climate Change, Migration and Adaptation”, The German Marshall Fund of the United States, (2010): 3.

104 Susan F. Martin, “Environmental Change and Migration: What We Know”, Migration Policy Institute Policy Brief, No. 2 (2013): 5.

105 *Falling through the Cracks: A Briefing on Climate Change, Displacement and International Governance Frameworks* (Environmental Justice Foundation, 2014): 5, accessed Sept. 25, 2015, <http://ejfoundation.org/sites/default/files/public/EJF%20Falling%20Through%20the%20Cracks%20briefing.pdf>.



habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad.”¹⁰⁶

However, this definition provides no legal protection or rights to those who migrate because of climate change impacts. Refugee law has little relevance to the majority of those displaced by climate change, as legal causation is extremely difficult to establish under the 1951 Convention,¹⁰⁷ the 1984 Cartagena Declaration,¹⁰⁸ or the 1969 Organization of African Unity (OAU) Convention.¹⁰⁹ Both the Cartagena Declaration and the OAU Convention apply for acute events that disturb public order, which is likely to occur with future intensification of storms and other climate change-related natural disasters.

The 1998 Guiding Principles on Internal Displacement¹¹⁰ cover environmental migrants, but exclude those displaced for economic reasons, but most mobility related to climate change is heavily influenced by economic conditions, and the loss of livelihoods and household income. Additionally, refugee status may not actually address the issue at hand; climate change is a borderless issue, and what is needed is risk reduction and adaptation support.¹¹¹

It is expected that most people fleeing from environmental consequences will migrate, but remain within their country and not cross an international border.¹¹² However, no international organization or institution is legally empowered to oversee IDPs. It is especially difficult to attribute a move to climate change impacts when the situation is occurring slowly. While both the Nansen Initiative on Disaster-Induced Cross-Border Displacement¹¹³ and the 2009 Kampala Convention¹¹⁴ reference climate change, it is unclear whether they can be used to cover slow-onset situations.¹¹⁵ The lack of legal protection for those affected by climate change has led the International Bar Association to endorse efforts to ‘green’ existing human rights laws – to recognize the effects of climate change and

106 *Discussion Note: Migration and the Environment* (International Organization for Migration, 2007): 1-2, accessed Sept. 25, 2015, https://www.iom.int/jahia/webdav/shared/shared/mainsite/about_iom/en/council/94/MC_INF_288.pdf.

107 The 1951 Convention and Protocol Relating to the Status of Refugees is the key legal document in defining who is a refugee, their rights and the legal obligations of states. See “Convention Relating to the Status of Refugees,” July 28, 1951, 189 U.N.T.S. 137, accessed Sept. 25, 2015, <http://www.unhcr.org/3b66c2aa10.html>.

108 The 1984 Cartagena Declaration clarified and refined the definition of a refugee. See “Cartagena Declaration on Refugees,” adopted Nov. 22, 1984, accessed Sept. 25, 2015, <http://www.unhcr-centraleurope.org/pdf/resources/legal-documents/international-refugee-law/1984-cartagena-declaration-on-refugees.html>.

109 The 1969 Organization of African Unity Convention was a regional agreement that added to the 1951 definition of a refugee. See “OAU Convention Governing the Specific Aspects of Refugee Problems in Africa,” adopted Sept. 10, 1969, accessed Sept. 25, 2015, <http://www.unhcr.org/45dc1a682.html>.

110 The 1998 Guiding Principles on Internal Displacement identify the rights of internally displaced persons and define their access to assistance. See “OCHA Guiding Principles on Internal Displacement,” (1998), accessed Sept. 25, 2015, <http://www.unhcr.org/43ce1cff2.html>.

111 *Falling through the Cracks*, 7.

112 Joseph Kweku Assan and Therese Rosenfeld, “Environmentally Induced Migration, Vulnerability and Human Security: Consensus, Controversies, and Conceptual Gaps for Policy Analysis,” *Journal of International Development* 24, no. 8 (2012): 1051.

113 The Nansen Initiative on Disaster-Induced Cross-Border Displacement seeks to create a consensus about key principles for protection of people displaced across borders as a result of natural disasters. See “The Nansen Initiative,” accessed Sept. 25, 2015, <https://www.nanseninitiative.org/>.

114 The 2009 Kampala Convention, formally called the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa, is a continental instrument that legally binds governments to protect the rights and wellbeing of people forced to flee their homes by conflict, violence, disasters and human rights abuses. See “African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa,” (2010), accessed Sept. 25, 2015, <http://www.internal-displacement.org/assets/publications/Tools-and-Frameworks/200910-training-KC-AU-Convention-on-IDPs-Eng.pdf>.

115 *Falling through the Cracks*, 9.



apply principles of climate change justice to current human rights laws and frameworks.¹¹⁶ As climate change-induced migration becomes more common, it will be necessary for the international community to come to a consensus about the rights of environmental migrants, and determine best practices for providing protection to those fleeing.

Planned Relocation

In some cases, a government may choose to take action to move communities, especially those who do not have the resources to migrate voluntarily. Relocation is the “physical movement of people instigated, supervised and carried out by State authorities, whether national or local.”¹¹⁷ This relocation may be temporary or permanent; permanent moves require greater planning and commitment by the authorities to include provisions for adaptation to the new environment. Planned relocation does not happen overnight, and governments must plan carefully, taking women’s needs and capabilities into consideration, to use relocation to adapt to the effects of climate change.¹¹⁸

Certain groups of people might need to be moved in response to the effects of climate change in order to protect them from climate change-related consequences: people who need to be relocated from areas prone to sudden-onset natural hazards which are increasing in severity and intensity as a result of climate change, such as flood-prone areas or coastal areas; people who need to be relocated because their livelihoods are threatened by slow-onset effects of climate change, including increasing drought frequency, salinization of water resulting from sea level rise or unsustainable use of aquifers, and who need to find permanent homes; and people who need to be relocated because their country or parts of their country face destruction from the effects of climate change, such as small island states facing sea level rise but also riverbank erosion.¹¹⁹ People may voluntarily migrate to escape all of these conditions, but migration requires assets that some families and communities do not have. Those who are left behind may be among the poorest and most vulnerable, and they will need government assistance to relocate.¹²⁰

International norms are still being created for planned relocation, as this strategy is often considered less important than more traditional mitigation and adaptation efforts. However, The Peninsula Principles on Climate Displacement Within States¹²¹ emphasizes the importance of including women as key stakeholders both in the planning and implementation processes.¹²² As a government plans and

116 International Bar Association Climate Change Justice and Human Rights Task Force, *Achieving Justice and Human Rights in an Era of Climate Disruption*, 9.

117 *Planned Relocations, Disasters and Climate Change: Consolidating Good Practices and Preparing for the Future: Background Document*, UNHCR, Brookings, and Georgetown University Institute for the Study of International Migration (2014): 8, accessed Sept. 25, 2015, <http://www.unhcr.org/53c4d6f99.pdf>.

118 *Ibid.*, 7.

119 *Ibid.*

120 *Ibid.*

121 The Principles provide a comprehensive normative framework, based on principles of international law, human rights obligations and good practice, within which the rights of climate displaced persons within States can be addressed. The Principles set out protection and assistance provisions, consistent with the UN Guiding Principles on Internal Displacement (upon which they build and contextualise), to be applied to climate displaced persons. See “Displacement Solutions”, accessed Sept. 25, 2015, <http://displacementsolutions.org/wp-content/uploads/2014/12/Peninsula-Principles.pdf>).

122 *The Peninsula Principles on Climate Displacement Within States*, Displacement Solutions (2013): 18, last accessed Sept. 25, 2015, <http://displacementsolutions.org/wp-content/uploads/2014/12/Peninsula-Principles.pdf>.



Globally, 1.3 billion people have no access to electricity, and 2.6 billion lack modern cooking facilities. More than 95 percent of this unmet need is in sub-Saharan Africa or Asia, and 84 percent of those affected are in rural areas.

implements a planned relocation, it is critical that women's voices be heard to inform how the relocation will happen and how the community will be integrated into their destination society.

Trafficking in Persons

Climate change and climate change-related migration is also linked to human trafficking. Human trafficking does not always involve migration, but traffickers often exploit the vulnerability of migrants who take risks to find work or shelter. Individuals leave their homes fleeing poverty and unemployment, criminal violence, armed conflict, or natural disasters, which can make them vulnerable to exploitation.¹²³ As climate change impacts physical and social environments, and the incidence of natural disasters increases, more people will mobilize and may be at risk of being trafficked. The Department of State's 2015 *Trafficking in Persons Report* argues, "when large populations of workers migrate for employment, especially to isolated locations, such as mining, logging, and agricultural camps, the incidence of sex trafficking in those areas may increase," and women may be forced into prostitution.¹²⁴

In Dholkhali, located in the Sundarbans on the eastern coast of the Indian subcontinent, Save the Children has reported that climate change is causing human trafficking rates to rise dramatically. The combined effects of poverty and climate change impacts increase traffickers' ability to lure women and children into forced prostitution, marriage, and labor. Save the Children India reports that while human trafficking has always been a problem, Cyclone Aila, which displaced more than a million people in May 2009, catalyzed trafficking. The issue looks likely to increase; the Sundarbans coastline is retreating about 650 feet per year, and much of the islands could be underwater in 15 to 25 years. Save the Children is supporting children's groups to enforce accountability for attending school and resisting traffickers in over eighty villages, and trafficking rates have dropped nearly to zero in those places.¹²⁵

Exploitation of workers is sometimes linked to environmental damage and deforestation, for example in the Amazon region. Brazil is a destination country for men, women, and children from other countries, including Bolivia, Paraguay, Haiti, and China, exploited in forced labor and debt bondage in many sectors.¹²⁶ Extractive industries often degrade the environment and occur in remote areas with minimal infrastructure and limited rule of law, and communities that form around these industries are often vulnerable to crime and trafficking.¹²⁷ As climate change impacts put pressure on livelihoods,

123 *Trafficking in Persons Report*, United States Department of State (2015): 17, accessed Sept. 25, 2015, <http://www.state.gov/documents/organization/245365.pdf>.

124 *Ibid.*, 18.

125 Sam Eaton, "After the Floods Come the Human Traffickers, But These Girls are Fighting Back", *PRI's The World*, Public Radio International (2015), accessed Sept. 25, 2015, <http://www.pri.org/stories/2015-09-15/after-floods-come-human-traffickers-these-girls-are-fighting-back>.

126 *Trafficking in Persons Report*, 98.

127 *Ibid.*, 19.



Thanks to these types of simple renewable energy innovations, women no longer have to spend time chopping down trees and gathering firewood to burn, which allows them time to start other entrepreneurial ventures, such as beekeeping or bead making. The saved income and time help to ensure that girls can attend school, and women have an increased ability to engage in more time-intensive work, such as reseeding land or planting.



people may seek employment in less stable environments and increase their risk of being trafficked for bonded labor or sexual exploitation.

Migration, whether undertaken voluntarily, as a result of forced displacement, or through planned relocation, is an important tool for addressing the changing social and physical environments and a volatile landscape of human security. Women's needs and capabilities must be considered in order to provide protection and opportunities for leadership and livelihood support as communities move.

Energy Production and Green Power

Mitigation of climate change and its effects happens through two processes: the reduction of greenhouse gas emissions, and the capture, fixing, and sequestration of carbon.¹²⁸ This is directly related to how energy is produced; low-carbon and sustainable energy systems can reduce carbon emission, slowing the rate at which the earth will warm. Reducing greenhouse gas emissions by using renewable energy sources is an opportunity to transform energy systems and build sustainable electricity supply systems, which can serve to benefit those who live in rural areas and women, who are often marginalized from urban power grids.

Globally, 1.3 billion people have no access to electricity, and 2.6 billion lack modern cooking facilities. More than 95 percent of this unmet need is in sub-Saharan Africa or Asia, and 84 percent of those affected are in rural areas.¹²⁹ Energy use has grown by more than 50 percent since 1990, and as much as one quarter of current world energy demand was created in the last decade.¹³⁰ This demand for energy will only increase in the future — estimates predict a 20 to 25 percent expansion of global energy demand over the next fifteen years.¹³¹ Nearly 40 percent of all energy is now used to produce electricity.¹³² Access to reliable electricity can have transformative effects for women and families.

Access to electricity allows households to have more productive hours each day, and is extremely important for individual progress and community development. Being able to afford and acquire electricity increases the time for children to study, and enables usage of electronics such as mobile phones and refrigeration, which can improve both health conditions and quality of life. These resources can facilitate access to healthcare, institutions, and political voice.¹³³

Demand for energy can also be damaging to the environment and contribute to greenhouse gas emissions. Fossil fuels now provide 87 percent of our primary energy supply.¹³⁴ Coal accounts for more than 40 percent of global electricity production, but 73 percent of power sector greenhouse gas emissions. Using renewable energy sources has the potential to reform the energy system in place. As the Global Commission on the Economy and Climate argues, “This is an opportunity to build more efficient, less polluting, more flexible energy systems that are also less vulnerable to rising and volatile

128 *Resource Guide on Gender and Climate Change* (United Nations Development Programme, 2009): 59, accessed Sept. 25, 2015, http://www.un.org/womenwatch/downloads/Resource_Guide_English_FINAL.pdf.

129 *Better Growth, Better Climate: The New Climate Economy Report*, (The Global Commission on the Economy and Climate, 2014): 147, accessed Sept. 25, 2015, <http://2014.newclimateeconomy.report/>.

130 *Ibid.*, 132.

131 *Ibid.*, 132-133.

132 *Ibid.*, 133.

133 *Ibid.*, 147-48.

134 *Ibid.*, 133.



...national and local authorities must also take action in opening opportunities for women to participate in energy production.

fossil fuel prices.”¹³⁵ These healthier, more flexible energy systems will strongly impact how women access and use electricity.

Women have the ability to reduce the use of fossil fuels and drive the market toward renewable energy. In 1999, Nigerian women headed a world movement to stop flaring natural gas¹³⁶, which Shell, with other oil companies, burned to cut maintenance costs. The amount of gas burned in the country was more than in any other part of the world, and emitted more greenhouse gases into the atmosphere than the whole sub-Saharan region. The women of the Niger Delta organized simultaneous protests in Nigeria and the United Kingdom that resulted in the temporary closing of Shell’s London headquarters and the oil wells in Nigeria. Shell’s production decreased by 400,000 barrels of oil per day as a result of the disruption. As the protests, known as “Operation Climate Change,” continued, the company resorted to violent strategies; in a confrontation, 200 people were killed and many women were allegedly subjected to sexual violence by members of the Shell-backed military administration.¹³⁷ On January 11, 1999, hundreds of women members of the Niger Delta Women’s Organization for Justice organized a protest responding to the rapes and assassinations as well as several political awareness workshops for women. A moratorium was placed on the flaring of natural gas in Nigeria, and the women continued organizing anti-oil protests around the region. Finally, in January 2006, due to social pressure and the women’s activism, the Nigerian courts ordered Shell to stop the flaring of natural gas in the western zone of the Niger Delta.¹³⁸

Renewable energy, in contrast with conventional power,¹³⁹ draws from resources that rely on fuel sources that restore themselves over short periods of time and do not diminish. Green power is a subset of renewable energy, which includes renewable energy resources and technologies that provide the highest environmental benefit. These include electricity produced from solar, wind, geothermal,

135 *Ibid.*, 131.

136 During oil production, natural gas is produced from the reservoir together with the oil. Much of this gas is utilized or conserved, but some of it may be flared (burned into the atmosphere) because of technical, regulatory, or economic constraints. Flaring of gas contributes to climate change and impacts the environment through emission of CO₂, black carbon and other pollutants. See “Zero Routine Flaring,” accessed Sept. 25, 2015, <http://www.worldbank.org/en/programs/zero-routine-flaring-by-2030#1>.

137 Andy Rowell, “Secret Papers ‘Show How Shell Targeted Nigeria Oil Protests,’” *The Independent*, June 14, 2009.

138 T.E. Turner and L. Brownhill, *Nigerian Commoners’ Gifts to Humanity: Climate Justice and the Abuja Declaration for Energy Sovereignty* (Carbon Trade Watch, 2006), accessed Sept. 25, 2015, <http://www.carbontradewatch.org/archive/nigerian-commoners-gifts-to-humanity-2.html>.

139 Conventional power includes the combustion of fossil fuels (coal, natural gas, and oil) and the nuclear fission or uranium. These fuels have environmental costs from mining, drilling, or extraction, and emit greenhouse gases and air pollution during combustion. See “Green Power Market: Green Power Defined,” U.S. EPA, last modified April 15, 2014, <http://www.epa.gov/greenpower/gpmarket/>.



biogas, eligible biomass, and low-impact small hydroelectric sources. Green power sources produce electricity without generating fossil-fuel based greenhouse gas emissions.¹⁴⁰

The falling costs of green energy systems, especially wind and solar power, could lead renewable and other low-carbon energy sources to supply more than half of all new electricity generation over the next fifteen years. In developing countries, renewables can help provide electricity for the more than one billion people without access.¹⁴¹ Overcoming energy poverty also requires upgrading the quality and efficiency of household thermal energy, primarily used for cooking. Reducing the need for traditional fuels such as wood eliminates the need for fuel collection, and liberates considerable time for women and girls to engage in other productive activities.¹⁴² The Maasai Wilderness Conservation Trust (MWCT) is an organization in southern Kenya that supports biodiversity in the tribal lands of East Africa by promoting conservation, education, and health services within the Maasai community. In 2014, New Course, an organization that focuses on poverty and environmental degradation, provided the MWCT with Luci Lights, solar lanterns that replace kerosene lamps. This prevents the negative health outcomes associated with using kerosene, and saves women the money normally used for purchasing kerosene.¹⁴³ MWCT has organized seven women's groups across five communities, and women who receive a Luci light are required to commit fifty percent of the money they save by not buying fuel to the women's groups in order for the group to fund their own enterprises.¹⁴⁴ Thanks to these types of simple renewable energy innovations, women no longer have to spend time chopping down trees and gathering firewood to burn, which allows them time to start other entrepreneurial ventures, such as beekeeping or bead making. The saved income and time help to ensure that girls can attend school, and women have an increased ability to engage in more time-intensive work, such as reseeding land or planting.¹⁴⁵

Another innovative and widely cited example is the Global Alliance for Clean Cookstoves (GACC), which is a public-private partnership that seeks to improve livelihoods by empowering women and protecting the environment through access to alternative eco-friendly cooking technologies. Almost half the world's population cooks food daily using open fires or traditional cookstoves that rely on wood, manure, coal, and charcoal for energy. This causes serious, chronic respiratory conditions – especially for women who are predominantly in charge of household chores – and accounts for approximately two percent of global greenhouse gas emissions.¹⁴⁶ Through a market-based approach, GACC reduces indoor air pollution, a leading cause of death for women and children in many developing countries, by providing clean cookstoves that not only eliminate the health and environmental hazards of other methods, but also significantly reduce the time required by women and girls to acquire cooking fuel and prepare meals. In Bangladesh, for example, British retail giant Marks and Spencers “provided funds for 40,000 fuel efficient, lower pollution cookstoves to be manufactured, sold and maintained by local entrepreneurs.” Similar initiatives exist around the world. Women are not

140 “Green Power Market: Green Power Defined,” *U.S. Environmental Protection Agency*, last modified April 15, 2014, <http://www.epa.gov/greenpower/gpmarket/>.

141 *Better Growth, Better Climate*, 6.

142 *Ibid.*, 148.

143 “Conservation Program Update: Luci Lights Initiate Change,” *Maasai Wilderness Conservation Trust*, (2015), accessed Sept. 25, 2015, <http://maasaiwilderness.blogspot.com/2015/06/conservation-program-update-luci-lights.html>.

144 “Solar Lights for Women’s Empowerment,” *Mpowered.com* (2015), accessed Sept. 25, 2015, <https://www.mpowered.com/press/details/solar-lights-womens-empowerment>.

145 Jamie Bechtel, “What Every Environmentalist Needs to Know About Time Security,” *The Huffington Post*, Aug. 7, 2015, accessed Sept. 25, 2015, http://www.huffingtonpost.com/jamie-bechtel/what-every-environmentalist-needs-to-know-about-time-security_b_7951920.html.

146 Radha Muthiah and Marc Bolland, “Companies Warm to Carbon Offsets from Cookstoves,” *Global Alliance for Clean Cookstoves*, June 4, 2015, accessed Sept. 25, 2015, <http://cleancookstoves.org/about/news/06-04-2015-companies-warm-to-carbon-offsets-from-cookstoves.html>.



Women are often responsible for managing the household, even when they are not perceived as heads of household, and traditionally acquire and ration power from kerosene and wood. The solar jobs created by Grameen Shakti have, at once, reduced energy poverty and made many of these women primary wage earners in their families.

only direct beneficiaries of this type of public-private partnership; the high-yield dividends advance economic, security, environmental, and human rights conditions for communities writ-large.¹⁴⁷

However, national and local authorities must also take action in opening opportunities for women to participate in energy production. Replacing subsidies for fossil fuels with subsidies for renewables, providing access to Village Savings and Loans initiatives or including an energy dimension in social protection programs could improve access for women and benefit whole communities.¹⁴⁸ Microfinance targeted to women could allow them to participate in transforming their communities. This type of entrepreneurial activity is situated within the local culture and should conform to local needs.

Grameen Shakti, a non-profit founded by the Grameen Bank, has supported the installation of nearly 800,000 solar home units in Bangladesh. Grameen Shakti trains women as solar technicians who then sign annual contracts with homeowners to maintain and service solar units. Grameen Shakti also provides jobs to people in their network to manufacture accessories for solar home systems. More than 1,000 women have been fully trained in these facilities, and thousands more have played related roles in solar construction and installation. These simple solar energy systems have a photovoltaic module, a rechargeable battery that enables both day and night use, and a number of lamps and fixtures. A 20 W_p (Watt peak) system can run two 5W lamps and a mobile charger for four or five hours each day, and costs US\$170. In comparison, a more complete 130 W_p system, which can run 11 7W lamps, a TV and a mobile charger for the same time period, costs US\$940. Women are often responsible for managing the household, even when they are not perceived as heads of household, and traditionally acquire and ration power from kerosene and wood. The solar jobs created by Grameen Shakti have, at once, reduced energy poverty and made many of these women primary wage earners in their families. A woman working as a solar technician can earn approximately US\$150 per month, which is similar to Bangladesh's Gross National Income Per Capita. This initiative allows women to gain economic independence, but also provides power to the 70 percent of Bangladeshis who do not have access to electricity.¹⁴⁹

Solar Sister operates in three countries in Africa and uses a distribution system to train women to sell clean energy products, such as clean cookstoves and solar lamps. This allows women access to sustainable livelihoods while also improving the lives of their customers. Access to energy can be very powerful and increase the number of productive hours per day. According to Solar Sister, the income of self-employed rural women with access to energy is over twice that of their counterparts without

147 *Ibid.*

148 *Access to Sustainable Energy: The Gender Dimensions* (Mary Robinson Foundation--Climate Change, 2013): 3, accessed Sept. 25, 2015, <http://www.mrfcj.org/media/pdf/2013-Malawi-Policy-Brief.pdf>.

149 Brian Handwerk, "Women Workers Tap the Sun to Light Up Homes in Rural Bangladesh" *National Geographic Online* (2012), accessed Sept. 25, 2015, <http://voices.nationalgeographic.com/2012/06/05/women-workers-tap-the-sun-to-light-up-homes-in-rural-bangladesh/>.



“According to Solar Sister, the income of self-employed rural women with access to energy is over twice that of their counterparts without access to energy. For rural female wage/salary workers, access to energy is correlated with 59 percent higher wages.”

access to energy. For rural female wage/salary workers, access to energy is correlated with 59 percent higher wages.¹⁵⁰ This business model benefits not only the women who are selling the products but also the broader community, increasing productive hours and decreasing exposure to smoke from wood fuel. Solar Sister measures its impact through over 1,200 entrepreneurs to benefit 2000,000 people.¹⁵¹

Reducing greenhouse gas emission is not only an issue of concern for large industries; it is an opportunity to transform the energy sector and to improve economic and social conditions around the world. Women often bear the burden of securing energy resources but are predominantly also energy poor. Their talents and perspectives should be at the forefront of the movement to reduce carbon emissions, create renewable and sustainable sources of energy, and expand access to telecommunications, livelihood security, and political participation.

Climate Finance

In order to contour energy projects to combat climate change effectively, the global financial system, national governments, and international partners must open opportunities for this greater green, gender-sensitive investment. The World Resources Institute (WRI) argues that in order to limit global temperature rise to two degrees Celsius above pre-industrial levels, significant investment must be made to mitigate greenhouse gas emissions and shift support to low-emissions development. WRI notes that while estimates of the scale of needed investment vary, US\$900 billion per year in additional investments in energy supply and demand technologies may be necessary through 2050.¹⁵² In order to make this happen, governments, particularly in developing countries, and international public finance institutions will need to encourage a significant level of private sector investment. Developing countries and international donors need to undertake readiness activities in order to create the conditions that attract scaled-up investment and enable economic transformation from carbon-intensive energy economies to economies based on low-carbon sources.¹⁵³

It is critical to open access to funding to women. The International Union for the Conservation of Nature (IUCN) argues:

“A gender-responsive climate finance architecture can play a profound role in supporting a climate change framework, and complementary sustainable development pathway, that promotes an equal, and resilient, economy for women and men. Historically, climate finance has had limited focus on and benefit for the poorest and most disadvantaged populations within developing countries, and for women in particular. This exacerbates vulnerability and climate injustice, and overall reduces the resilience of nations to the impacts of climate change.

150 “Impact”, *Solar Sister*, accessed Sept. 25, 2015, <http://www.solarsister.org/impact>.

151 *Ibid.*

152 Clifford Polycarp, Louise Brown, and Xing Fu-Bertraux, *Mobilizing Climate Investment: The Role of International Climate Finance in Creating Readiness for Scale-Up Low-Carbon Energy*, World Resources Institute (2013): 12, accessed Sept. 25, 2015, http://www.wri.org/sites/default/files/pdf/mobilizing_climate_investment.pdf.

153 *Ibid.*



Gender-responsive climate change finance can play a role in creating an enabling environment for those who have typically been excluded.”¹⁵⁴

National governments’ support for low-carbon energy production is crucial for constructing a new and sustainable energy market. Clearly articulated national energy plans, transparent and inclusive planning processes, and concrete targets are first steps toward providing investors with a stable and predictable environment and a long-term vision of the role of low-carbon energy in a country’s energy mix.¹⁵⁵ WRI examined experiences in Thailand, South Africa, Tunisia, Indonesia, India, and Mexico and found that strong government leadership and political commitment, which often includes policy reforms, institutional arrangements, initiatives to raise awareness, and promoting private sector investment, are crucial for creating a stable and open environment for investment in low-carbon energy sources. Additionally, it is necessary to address price distortions, such as fossil fuel subsidies, which increase the relative price of low-carbon energy options, which makes them less attractive to investors and consumers. Specifically, governments must support readiness activities to prepare the market for private and public investments in low-carbon energy. Encouraging investment in low-carbon energy requires transparent and inclusive planning and implementation processes by government, international, and private sector actors in partnership, paying attention to first-movers and small and medium enterprises.¹⁵⁶

National governments, especially in developing countries, may not have the resources or capacity to open these opportunities for investment. The Green Climate Fund (GCF), a part of the UNFCCC, Climate Investment Funds (CIF), a program of the World Bank, and the Global Environment Facility (GEF) all provide funding for countries to engage in green energy projects, or support for mitigation and adaptation programming. The GCF in particular places emphasis on the inclusion of women-centric and gendered programming. It is important for decision-makers to understand how these institutions operate and how these funds can be used to support women’s work in mitigation and adaptation.

The GEF and CIF emphasize gender mainstreaming¹⁵⁷ in their programming. The Global Environment Facility (GEF) is an international partnership of 183 countries, international institutions, civil society organizations, and private sector organizations aimed at addressing global environmental issues. Since 1991, the GEF has provided US\$14.6 billion in grants and leveraged US\$74.3 billion in co-financing for 4,032 projects in more than 165 developing countries. The GEF funds development projects and programs on biodiversity, climate change, international waters, land degradation, and chemicals and waste, and it has given US\$1 billion through 20,000 grants to civil society and community-based organizations through its. Through its Small Grants Programme (SGP),¹⁵⁸ the GEF emphasizes the importance of gender mainstreaming in its programming, though this may vary by project. The GEF states, “While the degree of relevance of gender dimensions may vary depending on the GEF focal area or type of engagement, accounting for gender equity and equality is an important consideration when financing projects that address global environmental issues, because gender relations, roles, and

154 Email correspondence, Maggie Roth, IUCN (31 Aug 2015).

155 Polycarp, Brown, and Xing Fu-Bertraux, 16.

156 *Ibid.*, 37-40.

157 The ECOSOC agreed conclusions 1997/2 defines gender mainstreaming as: “...the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women’s as well as men’s concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality.” UN Women says, “Gender mainstreaming entails bringing the perceptions, experience, knowledge and interests of women as well as men to bear on policy-making, planning and decision-making. Mainstreaming should situate gender equality issues at the centre of analyses and policy decisions, medium-term plans, programme budgets, and institutional structures and processes.” See <http://www.un.org/womenwatch/osagi/pdf/e65237.pdf>.

158 “What is the GEF”, Global Environment Facility (2013), accessed Sept. 25, 2015, <https://www.thegef.org/gef/whatisgef>.



A gender-responsive climate finance architecture can play a profound role in supporting a climate change framework, and complementary sustainable development pathway, that promotes an equal, and resilient, economy for women and men.

International Union For The Conservation Of Nature

responsibilities exercise important influence on women and men's access to and control over environmental resources and the goods and services they provide.”¹⁵⁹

The CIF supports country-led investments in clean technology, renewable energy, sustainable management of forests, and climate-resilient development. These funds are provided through four funding institutions: the Clean Technology Fund, the Forest Investment Program, the Pilot Program for Climate Resilience, and the Scaling Up Renewable Energy in Low Income Countries Program. Since 2008, 14 contributor countries have pledged US\$8.1 billion to the CIF, which is expected to leverage an additional US\$57 billion from other sources.¹⁶⁰ The *CIF Gender Action Plan FY15-16* seeks to mainstream gender in CIF policy and programming through policy, program support, analytical work, monitoring and reporting, knowledge and learning, and additional multi-donor bank activities.¹⁶¹

The Green Climate Fund seeks to fund both mitigation and adaptation and operates as a financial mechanism for the UNFCCC.¹⁶² The GCF has a comprehensive gender policy, which is applied to all mitigation and adaptation activities, whether implemented by international, regional, national or subnational, public or private entities. The GCF commits to, “understand[ing] the sociocultural factors underlying climate change-exacerbated gender inequality, and the potential contribution of women and men to societal changes in order to build resilience to, and the ability to address, climate change; adopt methods and tools to promote gender equality and reduce gender disparities in its climate funding; and measure the outcomes and impacts of its activities on women and men's resilience to climate change.” The Governing Instrument lists women explicitly among the Fund's stakeholders and calls for gender balance among members of the Board and staff of the Secretariat.¹⁶³ The GCF gender policy argues that inclusion of women is crucial to combatting climate change:

- a. “Women, as well as men significantly contribute to combating climate change. Shifting the paradigm towards low-emission and climate-resilient development pathways, which is the

159 “Gender Mainstreaming”, Global Environment Facility (2013), accessed Sept. 25, 2015, <https://www.thegef.org/gef/gender>.

160 “About the Climate Investment Funds”, Climate Investment Funds (2015), accessed Sept. 25, 2015, <http://www.climateinvestmentfunds.org/cif/node/11900>.

161 Anne T. Kuriakose, “CIF Gender Action Plan FY15-16”, Presentation in Montego Bay, Jamaica, Climate Investment Funds (25 June 2014), accessed Sept. 25, 2015, <https://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/CIF%20Gender%20Action%20Plan%20FY15-16.pdf>.

162 “Background”, Green Climate Fund (2015), accessed Sept. 25, 2015, <http://www.gcfund.org/about/the-fund.html>.

163 “Gender Policy and Action Plan”, Green Climate Fund (4 March 2015): 7-10, accessed Sept. 25, 2015, http://www.gcfund.org/fileadmin/00_customer/documents/MOB201503-9th/10_-_Gender_Policy_and_Action_Plan_20150304_fin.pdf.



Women, as well as men significantly contribute to combating climate change. Shifting the paradigm towards low-emission and climate-resilient development pathways, which is the Fund's mandate, requires a large number of individual and collective decisions by women and men. A gender-sensitive approach is therefore part of a paradigm shift.

Green Climate Fund

Fund's mandate, requires a large number of individual and collective decisions by women and men. A gender-sensitive approach is therefore part of a paradigm shift;

- b. Climate change impacts women and men differently, to the detriment of women, and existing gender inequalities are likely to be exacerbated by climate change; and
- c. Gender inequality, exacerbated by climate change, is linked, as are other development areas, to vulnerability and risks. The greater vulnerability of women to climate change stems from gender norms and discrimination that result in the imbalanced division of labour, lower income, and lesser livelihood opportunities; less access and control over land and other productive assets; fewer legal rights; lesser mobility and lesser political and professional representation.”¹⁶⁴

These institutions and apparatuses are important sources of support for international, regional, national, and private sector actors to support women's role in mitigation and adaptation efforts, and it is crucial that decision makers familiarize with these mechanisms in order to create a market for renewable energy, support sustainable grassroots development, and encourage women's inclusion and participation in all processes.

The next chapter of the report contextualizes the various trends, developments and issues related to climate change within a broader policy context, including at international and national levels, as well as describes the role of the private sector.

164 “Gender Policy and Action Plan”, *Green Climate Fund* (2015): 8, accessed Sept. 25, 2015, http://www.gcfund.org/fileadmin/00_customer/documents/MOB201503-9th/10_-_Gender_Policy_and_Action_Plan_20150304_fin.pdf. 8.

II. Looking to COP21: Mobilizing the International Community and Strengthening National Capacity

Climate change is a threat that is both globally dispersed and intensely localized. The following chapter seeks to describe the decisions of international bodies and states to address the effects of climate change. This chapter also examines current efforts to combat climate change from a gendered perspective.

Women and the International Climate Change Regime

Climate change forces women to adapt to and address the impact of climate change within their communities. As discussed in the previous chapter, climate change also impacts women differently than men, but the international dialogue around climate change has only recently begun to address the gendered dimensions of impacts and recognize the vital role women play as agents of change and solutions holders. Therefore, the international climate regime¹⁶⁵ should establish gender-responsive policies in order to support and empower women and their unique vulnerabilities and capabilities. This is critical to enhancing overall effectiveness of plans and programs, particularly in implementation. International climate leaders must also call for the inclusion of women in the decision-making bodies working to address climate change. Efforts to combat climate change cannot be as effective as intended if half the world's population has no voice or presence in the legal frameworks guiding mitigation and adaptation processes.

The Conference of Parties (COP)¹⁶⁶ has met 20 times since 1995, when the first COP was held in Bonn, Germany, and has created 376 decisions to address the ways to mitigate and adapt to the impact of climate change. Over 50 of the decisions and mandates directly reference gender, specifically recognizing the need for gender equality throughout various bodies of the UNFCCC.¹⁶⁷ Despite the fact that women are not explicitly identified as vulnerable groups or as important actors in mitigation and adaptation processes in the key treaties that formed the foundation of climate change negotiations – like the United Nations Framework Convention on Climate Change and the Kyoto Protocol – the

165 The international climate regime is comprised of industrialized countries who are members of the OECD; countries with economies in transition including the Russian Federation, the Baltic States, and several Central and Eastern European States; mostly developing countries; and least developed countries. A complete list can be found at the UNFCCC website: http://unfccc.int/parties_and_observers/items/2704.php. The complete list of leadership of the COP21 can be found here: http://unfccc.int/files/bodies/election_and_membership/application/pdf/regional_chairs.pdf.

166 “The Conference of the Parties (COP) is the “supreme body” of the Convention, that is, its highest decision-making authority. A key task for the COP is to review the national communications and emission inventories submitted by Parties. Based on this information, the COP assesses the effects of the measures taken by Parties and the progress made in achieving the ultimate objective of the Convention. It is an association of all the countries that are Parties to the Convention. The COP meets every year, unless the parties decide otherwise.” “UN Framework Convention on Climate Change,” *World Meteorological Organization*, accessed Aug. 17, 2015, https://www.wmo.int/pages/themes/climate/international_unfccc.php.

167 Lorena Aguilar, “Training Manual on Gender and Climate Change,” IUCN, UNDP, Global Gender & Climate Alliance, WEDO, UNESCO, FAO, (2009).





Efforts to combat climate change cannot be as effective as intended if half the world's population has no voice or presence in the legal frameworks guiding mitigation and adaptation processes.

role of women in addressing climate change has become increasingly visible over the years, making it possible now for women to be included and have their voices heard in all future treaties.¹⁶⁸

In 1990, the Intergovernmental Panel on Climate Change (IPCC) and the second World Climate Conference called for an international treaty to address climate change. This call for action was answered in 1992 with the establishment of the Rio Conventions. The Rio Conventions consist of three treaties: the UN Framework Convention on Climate Change (UNFCCC)¹⁶⁹, the UN Convention on Biological Diversity¹⁷⁰, and the UN Convention to Combat Desertification.¹⁷¹ Both the Convention on Biological Diversity and the Convention to Combat Desertification explicitly call for the full participation of women.¹⁷² The 1992 UNFCCC, which forms the basis of today's international climate change regime, did not address the issue of women's participation, nor does it make any reference to women throughout its text. The UNFCCC, however, serves as a *framework* document, established with the ability to be altered and changed over time to ensure that the international efforts to combat climate change are effective.

Several key decisions acknowledge the role that women should play in the negotiations. During COP7 in 2001, the decision to improve the participation of women in both the UNFCCC and the Kyoto Protocol was established.¹⁷³ This was an historic decision because it was the first time the COP specifically addressed the importance of increasing women's participation. Yet despite COP7 encouraging Parties to include women in decision-making mechanisms addressing climate change, women continued to be underrepresented in the negotiations, and the discussions about issues affecting women occurred on the margins until 2010. During COP10, the Cancun Agreement stated that women were more vulnerable to the effects of climate change, and the disproportionate impact of environmental change on women needed to be addressed in future decisions.¹⁷⁴ Furthermore, gender-responsive policies were included in REDD+ guidelines and safeguards.¹⁷⁵ The Cancun Agreement did not provide any specific mechanisms that required states to include women.

During COP18, two years after the Cancun Agreement, the Parties issued a decision that referenced both the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and the 1995 Beijing Declaration and Platform for Action, which specifically recognized the need for women's participation in the decision-making process to effectively combat, mitigate, and adapt to climate change.¹⁷⁶ This decision established gender as a permanent agenda item for all future COPs. It also spurred the creation of gender-sensitive climate policy, although the language was anemic; it

168 Trish Glazebrook, "Women and Climate Change: A Case-Study from Northeast Ghana," *Hypatia* 26, no. 4 (Fall 2011): 774.

169 UN Framework Convention on Climate Change (UNFCCC), May 9, 1992, 1771 U.N.T.S. 107, accessed Sept. 25, 2015, https://treaties.un.org/doc/Treaties/1994/03/19940321%2004-56%20AM/Ch_XXVII_07p.pdf. See "Towards a climate agreement," *UN and Climate Change*, accessed Aug. 17, 2015, <http://www.un.org/climatechange/towards-a-climate-agreement/>.

170 Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79, accessed Sept. 25, 2015, <https://www.cbd.int/doc/legal/cbd-en.pdf>. See also "Towards a climate agreement," *UN and Climate Change*, accessed Aug. 17, 2015, <http://www.un.org/climatechange/towards-a-climate-agreement/>.

171 Convention to Combat Desertification, Sept. 12, 1994, 1954 U.N.T.S. 3, <http://www.unccd.int/Lists/SiteDocumentLibrary/conventionText/conv-eng.pdf>. See also "Towards a climate agreement," *UN and Climate Change*, accessed Aug. 17, 2015, <http://www.un.org/climatechange/towards-a-climate-agreement/>.

172 *Convention to Combat Desertification*, 3; *Convention on Biodiversity*, 2; *Convention to Combat Desertification*, Art. 19(3)(e), p. 18; UNCBD, 2. See also *Convention to Combat Desertification* Art. 5(d); Art. 10(2)(f); Art. 19(1)(a); Annex I, Art. 8 (2)(c). *Convention to Combat Desertification*, Art. 19(3)(e), p. 18.

173 Decision 36/CP.7. "Improve the Participation of Women in the Representation of Parties in Bodies Established under the UNFCCC and the Kyoto Protocol, 2001, COP 7.

174 Decision 1/CP.16. *The Cancun Agreements* (2010): 2 - 4.

175 "Gender Equality Language in the Cancun Agreements," accessed Sept. 25, 2015, http://www.wedo.org/wp-content/uploads/W+G-compilation_Cancun-Agreements_advance-version.pdf

176 Decision 23/CP. 18, 1.



did not mandate the inclusion of women, but rather invited Parties to meet gender-balanced goals.¹⁷⁷ Additionally, the decision established a mechanism to track, for the first time in the history of COP, women's participation in the constituted bodies of COP.

In 2007, after COP13, the Global Gender and Climate Alliance (GGCA) was created by the United Nations Environment Programme, United Nations Development Programme, International Union for Conservation of Nature, and Women for Environment and Development.¹⁷⁸ The alliance has exponentially increased since 2007, with over 100 organizations participating. It has been a key proponent for women's inclusion in the negotiations and has pushed for gender-responsive policies and programming in all subsequent COPs.

At COP18, the decision was made to host “an in-session workshop on gender balance in the UNFCCC process” to create a space to discuss gender-sensitive climate policy and activities to promote women's participation was presented.¹⁷⁹ This unprecedented workshop was held during COP19 on November 12, 2013. The participants called for instituting capacity-building on gender-sensitive policies, and the implementation and improvement of the gender balance within the UNFCCC process through training programs, quotas, and financial resources specifically aimed toward efforts to increase women's participation.¹⁸⁰ Another important outcome of COP18 was the publication of the Subsidiary Body for Implementation Report in 2013, which explicitly discussed the issue of gender and climate change and categorically called for Parties to increase the participation of women and support the creation of gender-sensitive climate policies.¹⁸¹

COP20 – held in Lima, Peru in December 2014 – showed continued progress regarding gender and climate change on the international scale, with the establishment of eight unique decisions that specifically discussed gender.¹⁸² The “Lima Work Programme on Gender” decision sought to advance gender balance in climate policy-making bodies, and to promote gender sensitivity in developing and implementing policies to address climate change.¹⁸³ COP20 also garnered a great deal of international media attention because of the release of the “Lima Call for Action,” which called on Parties to commit to reaching “an ambitious agreement in 2015” that addresses the issues of mitigation, adaptation, finance and capacity-building.¹⁸⁴

The conference in Lima raised the expectations of what will be discussed and determined during this year's conference in Paris. COP21 is expected to be the groundbreaking moment for the international climate regime. In order to fully engage on the issue of inclusion, COP21 must seize upon the past decisions that recognize the unique vulnerabilities of women and their capacity to lead adaptation

177 Decision 23/CP.18, OP.3, 6-7.

178 “Global Gender and Climate Alliance,” accessed Sept. 25, 2015, <http://gender-climate.org/>.

179 Decision 23/CP.18

180 Nathalie Eddy, “Warsaw Opens a New Chapter on Gender Equality and Climate Change,” *Global Gender and Climate Alliance (GGCA)*, 2013, accessed Sept. 25, 2015, <http://www.stakeholderforum.org/sf/outreach/index.php/previous-editions/196-cop-19-day-7-private-sector-innovation-and-climate-change/11600-warsaw-opens-a-new-chapter-on-gender-equality-and-climate-change>.

181 UNFCCC/SBI/2013/20. “Conclusions: Gender and Climate Change.” Conclusions adopted as document FCCC/SBI/2013/L.16. 2013, COP19.

182 1/CP.20; 2/CP.20; 3/CP.20; 4/CP.20; 7/CP.20; 8/CP.20; 9/CP.20; 18/CP.20.

183 *World on Track to New Universal Climate Agreement with Lima Call for Climate Action: Governments Agree Ground Rules on Contributions to Paris 2015 Agreement and Boost Adaptation*, UNFCCC, 14 December 2014, accessed Sept. 25, 2015, <http://newsroom.unfccc.int/lima/lima-call-for-climate-action-puts-world-on-track-to-paris-2015/>.

184 Decision 1/CP.20. “Lima Call for Climate Action.” 2014, COP20.



In principle, ccGAPs identify the gendered impacts of climate change in respective countries, provide a roadmap for the inclusion of women's voices in the development and implementation of policies, and create a space for women - who are already working to combat, mitigate and adapt to the effects of climate change - to exchange experiences and solutions.

efforts, and go one step further, strengthening guidelines and protocols that advance comprehensive, gender-responsive policies.

National Commitments: Climate Change Gender Action Plans

In addition to existing high-level international processes and protocols to address climate change, states have designed and implemented national frameworks to combat climate change and promote women's agency to address the gendered dimensions of climate change.

Climate Change Gender Action Plans (ccGAPs) are an important tool that 13 countries and two regions have developed as of September 2015,¹⁸⁵ in coordination with the International Union for Conservation of Nature (IUCN), "to empower and respond to the needs of [women]...link national and global policy...and to enhance the effectiveness and efficiency of climate change and socioeconomic development responses."¹⁸⁶ These Gender Action Plans are designed in close consultation between IUCN, local civil society organizations, and representatives from across relevant government ministries. In principle, ccGAPs identify the gendered impacts of climate change in respective countries, provide a roadmap for the inclusion of women's voices in the development and implementation of policies, and create a space for women - who are already working to combat, mitigate, and adapt to the effects of climate change - to exchange experiences and solutions. Below, some examples are provided of how and for what purpose Haiti, Nepal, and Tanzania developed ccGAPs. While each ccGAP is context-specific and crafted by local actors to propose effective solutions, the ccGAPs for these three countries are well-designed and provide a diverse geographical sample.

185 "Climate Change Gender Action Plans (ccGAPs)," *Global Gender Office, International Union for Conservation of Nature*, (2015), accessed Sept. 25, 2015, <http://genderandenvironment.org/knowledge-center/?filter=ccgap>.

186 Rebecca Pearl-Martinez et al., *The Art of Implementation: Gender Strategies Transforming National and Regional Climate Change Decision Making* (Global Gender Office, International Union for Conservation of Nature, 2012): 8.





Haiti

Haiti is the poorest country in the Western Hemisphere, and has a history fraught with political turmoil and natural disasters, including hurricanes, earthquakes, and coastal erosion. The government, in coordination with IUCN, developed a ccGAP in 2011¹⁸⁷ that identifies water, agriculture, health, and disaster risk reduction as priority areas. According to IUCN, “Haiti is one of the rare countries where there is an institutional structure addressing gender mainstreaming.”¹⁸⁸ In fact, women representatives from all 10 government departments designated with responsibilities relevant to climate change participated in the national stakeholder workshop on gender mainstreaming in climate change efforts.¹⁸⁹ Furthermore, the engagement of community groups in the ccGAP development is vital to the success of the programs. In Haiti, grassroots women’s groups established community-level support networks to combat climate change. In particular, the work of grassroots women’s organizations in the

187 “Programme pour la généralisation de l’analyse selon le Genre dans les efforts de lutte contre les changements climatiques en Haïti,” *Global Gender Office, International Union for Conservation of Nature* (2011): accessed Sept. 25, 2015, https://portals.iucn.org/union/sites/union/files/doc/ccgap_haiti.pdf.

188 Pearl-Martinez et al., 89.

189 *Ibid.*



agricultural sector was found to reap significant benefits through increased access to support groups and networks.¹⁹⁰ Implementation will be key to the success of Haiti's ccGAP.

Nepal

Nepal is a small country in South Asia that is confronted with declining rainfall, but also vulnerable to flooding. Women make up two-thirds of Nepal's agricultural workforce, but own only 10 percent of the land, with less than four percent owning arable land.¹⁹¹ Their ability to serve as vanguards in climate change adaptation and prevention is critical to the country's food supply, as well as their economic productivity. The government created a Climate Change Policy in 2011 that did not specifically address the needs of women or girls, but did include language stating that the policy supports the engagement and participation of women in the implementation of climate change-related programming.¹⁹² In 2012, in cooperation with IUCN and civil society, the Nepalese government created a ccGAP.¹⁹³ The Nepalese ccGAP addresses gender as the focal point for six priority areas: agriculture and food security, forests, water, energy, health, and urbanization. It also includes provisions to improve women's economic security, ensure agricultural output, and address climate change-related threats. One of the action steps identified in the plan, for example, is to create "climate-smart seed banks owned and managed by women."¹⁹⁴ Nepalese women discovered that the use of hybrid seeds for crops from India were unable to produce healthy harvests year after year, and they were also unable to withstand flooding or drought. The indigenous seeds, however, proved to be more resilient and well-suited to the unpredictable local climate. With this knowledge, seed banks were started within local communities whereby women could hold assets in the form of kilograms of seeds that they could then loan to other women farmers. The loan would be repaid by giving the bank an agreed-upon amount of new seeds. The Department of Agriculture began supporting these cooperatives and working to establish them in communities throughout the nation.¹⁹⁵

Tanzania

Tanzania, located in Eastern Africa along the Indian Ocean and inhabited by some 50 million people, is suffering the effects of climate change, specifically because of the changing weather patterns impacting animal migration and deterioration of soil quality. These, in turn, affect crop production. Women in rural communities represent 53 percent of the agricultural labor force, yet often do not own land or have access to the resources or education necessary to allow them to address the impacts of climate change.¹⁹⁶ The Tanzanian Constitution, Bill of Rights, and the *Tanzania Vision of 2025*¹⁹⁷ seek to end gender imbalances by 2025. Unfortunately, gender inequalities persist within Tanzania on both the local and national levels in the economic, political, security, and social arenas. In an effort to engage with women and recognize their efforts in combating and adapting to the effects of climate change, the government, in consultation with IUCN, established a ccGAP, officially titled the National Strategy for

190 Dalberg Global Advisors, *Gender Assessment for USAID/Haiti Country Strategy Statement* (USAID, 2010): 31-32, accessed Sept. 25, 2015, http://pdf.usaid.gov/pdf_docs/PA00K556.pdf.

191 Pearl-Martinez et al., 28.

192 "Climate Change Policy 2011," *Nepal Ministry of Environment* (2011), accessed Sept. 25, 2015, <http://www.climatenepal.org.np/main/?p=research&sp=onlinelibrary&opt=detail&id=419>.

193 Pearl-Martinez et al., 13, 23.

194 *Ibid.*, 29.

195 Sudeshna Sarkar, "Climate Change: Nepali Women Sow a Secure Future," *Inter Press Service News Agency* (2011), accessed Sept. 25, 2015, <http://www.ipsnews.net/2011/09/climate-change-nepali-women-sow-a-secure-future/>.

196 *Levelling the Field: Improving Opportunities for Women Farmers in Africa* (World Bank and One Campaign, 2014): 30, accessed Sept. 25, 2015, <https://openknowledge.worldbank.org/bitstream/handle/10986/17790/860390WP0WB0ON0osure0date0March0180.pdf?sequence=1>.

197 *The Tanzania Development Vision 2025* (United Republic of Tanzania, 1995), accessed Sept. 25, 2015, <http://www.tzonline.org/pdf/theTanzaniadevelopmentvision.pdf>.



Mainstreaming Gender in Climate Change. It recognizes the need to integrate gender into policies and programs surrounding climate change, and seeks to ensure that women and men have both the access and ability to contribute to initiatives focused on climate change issues. Key priority areas for Tanzania include: improving women's access to land tenure, increasing the participation of women and girls in agricultural education, creating gender-based programs to improve the management of water sources, augmenting women's participation in energy technologies, building institutional understanding on gender, climate change, and forestry, and developing gender responsive programs to address adaptation in the coastal regions.¹⁹⁸

The examples highlighted from these three country experiences signal important developments at the national level to simultaneously address climate change and empower women. Nevertheless, women continue to be marginalized at subnational, national, and international levels when it comes to decision-making and action on climate change. Processes need to be streamlined; civic education is critical, and open channels of communication between private, public, and non-profit sectors are crucial to effective implementation.

Corporate Social Responsibility and Environmentally Friendly Business

The private sector is also an important stakeholder in addressing climate change. Increasingly, “companies are using social investment, philanthropy, and public policy dialogue to expand and enhance the impact of core business activities,” including the promotion of sustainability.¹⁹⁹ In this arena, private sector can be a powerful partner to civil society and governments, and, in fact, there exist promising examples of how this is already happening as well as important lessons-learned from those experiences. The private sector must be engaged in a way that advances their business interests, reduces environmental degradation and promotes socio-economic resilience. The blanket vilification of the private sector is counter-productive to addressing climate change, especially as more and more companies recognize their need to play a leading role and are beginning to take action in order to address climate change. In 2015, for example, 13 U.S.-based companies committed US\$140 billion not only to reduce their carbon footprint, but also to address climate change proactively.²⁰⁰

For example, Unilever, a large multi-national corporation with over 400 brands, recognized that women are essential to achieving their three core sustainability efforts: eliminating deforestation, sustainable agriculture and smallholder farmers, and water, sanitation and hygiene.²⁰¹ In an initiative by Hindustan Lever (Unilever's local subsidiary in India) known as “Shakti Project,” the company employs over 50,000 women in rural India to sell its products.²⁰² Through this initiative, these women use local “self-help groups” to engage with other women in their communities and teach them about the importance of cleanliness and hygiene, as well as sell their products.²⁰³ Unilever is therefore able

198 Pearl-Martinez et al., 41-42.

199 Beth Jenkins et al., *The Coca-Cola Company's 5by20 Initiative: Empowering Women Entrepreneurs across the Value Chain* (Cambridge: Harvard Kennedy School Corporate Social Responsibility Initiative and Business Fights Poverty, 2013): 4, accessed Sept. 25, 2015, http://www.hks.harvard.edu/m-rcbg/CSRI/CSRI_BusinessFightsPoverty_5by20Report_September2013.pdf.

200 Valerie Volcovici, “13 Major US Companies are pledging \$140 billion to fight climate change,” *Reuters*, July 27, 2015, accessed Sept. 25, 2015, <http://www.businessinsider.com/r-us-private-sector-vows-to-ante-up-on-climate-finance-2015-7>.

201 *Scaling for Impact: Summary of Progress 2014* (Unilever, 2014): 11, accessed Sept. 25, 2015, https://www.unilever.com/Images/uslp-Unilever-Sustainable-Living-Plan-Scaling-for-Impact-Summary-of-progress-2014_tcm244-424809.pdf.

202 “Fighting for the next billion shoppers,” *The Economist*, June 30, 2012, accessed Sept. 25, 2015, <http://www.economist.com/node/21557815>.

203 Hitendra Patel et al., *Getting Safe Water and Sanitation to the Bottom of the Pyramid through Bold and Game-Changing Innovations: Accelerating Water.org's vision* (Hult Int'l Business School, March 2011): 8, accessed Sept. 25, 2015, <http://static.water.org.s3.amazonaws.com/public/hult/HGCC-Waterorg-case-study-IXL.pdf>.



The private sector must be engaged in a way that advances their business interests, reduces environmental degradation, and promotes socio-economic resilience.

to promote one of its core sustainability efforts, provide women with jobs, and expand to a remote market, which is good for its business bottom line.

Companies that strive to reduce their environmental impact through community-focused projects have important opportunities to support capacity-building for local women. The Coca-Cola Company, for example, developed the 5by20 program to help provide new skills and economic opportunities to five million women entrepreneurs by 2020 in several developing economies where the company operates. The 5by20 initiative targets women in the company's global value chain, including suppliers, distributors, retailers, artisans, producers, and recyclers by combining "core business operations, cross-sector partnership, and strategic social investment."²⁰⁴ A Harvard Business School case study on 5by20 recognized the "Coletivo Recycling" project in Brazil, which improves livelihoods for waste-pickers and increases efficiency of recycling and water-management efforts. The project has provided new economic opportunities and boosted self-esteem for more than 10,000 members of recycling cooperatives, more than half of whom are women, since 2002.²⁰⁵

In addition to the work of corporations, new social businesses are emerging committed to both sustainability and women's empowerment. Below are some examples of how a few ventures recognize women are agents of change and enable their capacity as critical partners in combating climate change:

Barefoot College, an Indian non-governmental organization focused on community-based learning, trains women in developing countries to install and maintain solar panels to expand access to electricity, especially in rural areas. In Zanzibar, Tanzania, these "solar mamas" have already electrified over 600 households, increasing productive hours in homes and businesses in Zanzibar. This program provides women with secure employment and expands the percentage of the population with access to electricity, which financially benefits both the "solar mamas" and those receiving electrical service.²⁰⁶

The Ghana Bamboo Bikes Initiative, founded and led by a female entrepreneur, builds high quality bamboo bicycles in order to combat climate change. Bamboo bikes have a lower environmental impact than metal bikes or motorized vehicles, and growing bamboo is also good for the surrounding environment. Additionally, the Initiative creates jobs for women with little to no education, helping to reduce poverty in rural areas. Although in its early stages, Ghana Bamboo Bikes has already created new employment opportunities. The bamboo trees that are not harvested absorb carbon dioxide emissions, and the bamboo growth prevents soil erosion for farmers and improves water and air quality.²⁰⁷

As aforementioned examples of private sector initiatives on climate change show, where there is willingness, there are creative and meaningful opportunities for growing corporate social responsibility as well as environmentally friendly business approaches. The challenge of the future is to make these the norm rather than exceptions. There are many opportunities to engage private sector enterprises – at

204 Jenkins et al., 6.

205 *Ibid.*, 28.

206 "Zanzibar's 'Solar Mamas' flip the switch on rural homes, gender roles," *The World*, Public Radio International, June 5, 2012, accessed Sept. 25, 2015, <http://www.pri.org/stories/2015-06-05/zanzibars-solar-mamas-flip-switch-rural-homes-gender-roles>.

207 "Ghana Bamboo Bikes Initiative," *UNFCCC Momentum for Change* (2014) accessed Sept. 25, 2015, http://unfccc.int/secretariat/momentum_for_change/items/7842.php.





global and local levels – to integrate gender sensitivity into their sustainability initiatives. This has the potential not only to benefit women and men but also to benefit businesses. The data today are incontrovertible: where women have economic opportunity and financial independence, individual prosperity and collective stability are more likely.²⁰⁸ Women control the majority of the world’s purchasing power and they are increasingly also entrepreneurs at every level.²⁰⁹ Eco-friendly business practices that also promote gender equality do not have to compromise bottom lines.

The final chapter of the report provides a set of conclusions and recommendations, focused on key stakeholders and urgent issues, in anticipation of the 2015 COP21 conference.

208 Klaus Schwab, World Economic Forum, *The Global Competitiveness Report 2014-2015* (Geneva: World Economic Forum, 2014): 59.

209 Jennifer Gilhool, “The Power of ‘Just One Woman,’” *Forbes* (2013) accessed Sept. 25, 2015, <http://www.forbes.com/sites/85broads/2013/08/26/the-power-of-just-one-woman/>; Michael Silverstein and Kate Sayre, “The Female Economy,” *Harvard Business Review* (2009), accessed Sept. 25, 2015, <https://hbr.org/2009/09/the-female-economy>.



III. Conclusions and Recommendations

Climate change is as much an economic, human security, and human rights issue as it is an environmental concern. In all of these arenas, women are uniquely, and in some cases disproportionately, affected by the consequences of climate change. It is important to take into consideration women's experiences and aspirations from various contexts when formulating solutions to address climate change. Promoting gender equality as part of climate change preparedness is not about placing women over men; in a similar vein, "addressing gender aspects in climate change policy neither means to blame one part of the population nor to romanticize the other." Research and experience show that whereas men engaged in climate change adaptation and mitigation tend to favor technical solutions, women tend to be risk-aware and willing to change their habits.²¹⁰ Robinson adds, "Women understand the inter-generational aspects of climate change and sustainable development."²¹¹

Men and women are, of course, not homogenous groups, and their experiences, lifestyles, and geographic and socioeconomic conditions shape their worldviews and proclivities; cognizance of these types of tendencies can be powerful knowledge when innovating solutions. Therefore, more women are needed in high-level negotiations on climate change, but their mere presence is no panacea. Greater connectivity between the international climate change regime and civil society efforts to address climate change – including those led by women or focused on gender-based vulnerabilities – is essential. Gender awareness is critical to improving not only the progress of negotiations, but also their outcomes in COP21 and beyond. At the same time, women-led solutions – especially at the community level – need to be supported and validated through scientific research and financial resources.

Educating and empowering women and girls is central to enabling women's participation and leadership on climate change. Eleanor Blomstrom, head of Women's Environment and Development Organization, argues, "It's not enough to have women at the table and then hope that effects trickle down to the grassroots. Empowering the middle is critical, and connecting the international, national, and local is inseparable to creating change."²¹² Inclusivity and appreciation for differences in opinions and experiences can broaden the generation of ideas and design of solutions. The ability of men and women to elevate their voices and exercise choices is critical to ensuring climate justice, and thereby facilitating a peaceful, secure, and prosperous planet. At the same time, leaders of national institutions and international bureaucracies also need to be better educated and held accountable for ensuring their priorities and approaches take into consideration women's vulnerabilities and productive potential.

Policies that purport to be gender-neutral are, inherently, discriminatory because they fail to take into consideration the different ways in which men and women experience the effects of climate change, as well as how they adapt. Institutions, including in the public, private, and nonprofit sectors, have to be better attuned to the roles and responsibilities of women vis-à-vis climate change. Future climate negotiations, starting this year with Paris 2015, need to integrate gender responsive policies in a more robust way – especially in the area of mitigation – to not only promote equity and equality between men and women, but also to enhance overall effectiveness of the international climate change regime. Integrating a gender-responsive approach into policymaking on climate change necessitates expertise

210 See *Gender into Climate Policy: Toolkit for Climate Experts and Decision-Makers* (Berlin: GenderCC--Women for Climate Justice, Nov. 2009), accessed Sept. 25, 2015, <http://www.gendercc.net/fileadmin/inhalte/Dokumente/Tools/toolkit-gender-cc-web.pdf>.

211 Mary Robinson, "Why women are world's best climate change defense," *CNN*, Dec. 12, 2011, accessed Sept. 25, 2015, <http://www.cnn.com/2011/12/09/opinion/mary-robinson-women-climate/>.

212 Alam et al., *The United Arab Emirates Panel Series on Women, Peace and Security*.





“It’s not enough to have women at the table and then hope that effects trickle down to the grassroots. Empowering the middle is critical, and connecting the international, national, and local is inseparable to creating change.”

Eleanor Blomstrom, head of Women’s Environment and Development Organization

and attention on how to assess problems, review proposals, implement programs with strategically targeted resources, and monitor results.

Below is a set of targeted recommendations to concurrently reduce gender-based vulnerabilities, address climate change as an economic, human rights, and security issue, and to promote women's empowerment.

Recommendations

Climate change is a global problem that manifests itself in a variety of ways, requiring responses from different groups at different levels. It is necessary to collect, organize, and analyze gender-disaggregated data, specifically on how men and women contribute to and are affected by climate change. This type of data needs to be disseminated much more robustly. Additionally, attention needs to increase at all levels to acknowledge and include women's voices and perspectives about harms suffered as well as examples of successful efforts related to climate change mitigation and adaptation.

International Organizations

These recommendations are directed towards UNFCCC, as well as other multilateral organizations engaged in addressing climate change, such as the World Bank, UNEP, the European Union (EU), the African Union (AU), and the Association of Southeast Asian Nations (ASEAN). International decision-makers, including delegates at COP21 and beyond, should engage with women who represent grassroots groups at every stage of negotiations, create protections within the international migration regime for environmental migrants, and open opportunities for women to participate in mitigation and adaptation processes. The following are identified as critical actions:

- Include women representatives from local communities in all stages of negotiation and planning and ensure that women are serving as principals and in senior posts. Institute mechanisms to track women's participation in all stages of negotiation and planning to see if parties are meeting the 40 percent minimum recommended presence.
- Include women representatives as official Party delegates in all stages of negotiation and planning, and ensure that women are serving in senior positions.
- Prioritize women's capabilities and open opportunities for women in mitigation and adaptation processes.
- Build an international regime for the protection of environmental migrants that takes women's specific needs into account.
- Increase access to and sustain easily disburseable funding streams for programs and/or trainings that facilitate women's participation.
- Maintain a publicly available and regularly updated online database of women's and men's participation in UNFCCC processes, including for informal bodies and groups, disaggregated by regional grouping or constituency and presenting the data in ranking tables to allow for comparison.²¹³
- Engage actively with parties in negotiations to ensure that officers responsible for establishing informal bodies and groups are aware of the need for gender balance at the time of the establishment and convening of these bodies.²¹⁴

213 *The Full View: Advancing the Goal of Gender Balance in Multilateral and Intergovernmental Processes* (UN Women and Mary Robinson Foundation-Climate Justice, May 2013), <http://www.mrfcj.org/pdf/2013-06-13-The-Full-View.pdf>.

214 *Ibid.*



- Provide clear guidance to institutions and relevant bodies on why and how to appoint women to workshops and expert panels, as well as guidance on how to gender mainstream agendas and documents.²¹⁵
- Build capacity through efforts such as targeted training and general awareness-raising on issues surrounding gender equality.²¹⁶

National Governments

States should develop policies to address climate change that recognize gendered impacts, provide women with access to resources, and enable opportunities for them to participate in mitigation and adaptation processes. The following are identified as critical actions:

- Create, fund, and implement national ccGAPs that are gender-sensitive and gender-responsive, and create workshops for stakeholders to network and coordinate action around incorporating women in climate change mitigation and adaptation processes.
- Support equal access, control, and distribution of benefits for men and women.²¹⁷
- Analyze and understand levels of vulnerability, resilience, and autonomy of men and women when confronted with different threats.²¹⁸ Incorporate local knowledge for social and economic development.²¹⁹
- Actively implement disaster risk reduction programs to take action to lessen impacts of natural hazards.²²⁰

Private Sector

Companies and social businesses should engage in ways that advance their business interest, while also reducing environmental degradation and promoting socio-economic resilience by engaging in programming that supports women. Private sector enterprises must go beyond approaching environmental sustainability and women's economic advancement as simply questions of corporate social responsibility, and, instead, do more to integrate environmentally-sound and gender-sensitive business practices into their core operations. Ethical investments along with reporting on outcomes of socially and ecologically conscious initiatives are critical to amplifying the positive potential of the business sector. The following are identified as critical actions:

- Establish partnerships with NGOs to support programming that engages with local women and promotes sustainability.
- Support or create projects that increase the capacity of women to combat the effects of climate change.
- Invest in initiatives that create job opportunities for women and men in local economies that also support climate change mitigation and promote socially and environmentally conscious value chains.

215 *Ibid.*

216 *Ibid.*

217 *Resource Guide on Gender and Climate Change* (United Nations Development Programme, 2009), 55, http://www.un.org/womenwatch/downloads/Resource_Guide_English_FINAL.pdf.

218 *Ibid.*

219 *Ibid.*

220 *Ibid.*



NGOs

Local organizations, and international organizations that operate programs at the grassroots level, must include women in discussions about environmental protection, building resilience, energy poverty, land tenure, food insecurity, and water resources. The following are identified as critical actions:

- Enable women's equal access to land ownership and other resources needed for effective socio-economic participation, such as capital, technical assistance, technology, tools, equipment, markets, and time.²²¹
- Recognize the importance of domestic work and the knowledge it brings to matters concerning climate change, and promote men's participation in this sphere.²²²
- Train both women and men in methods for increasing their productivity with new forestry technologies that may allow for greater productivity in a changing climate.²²³ These include, for example, techniques for nurseries, site selection, species selection, land preparation, sowing, weeding, and maintenance.²²⁴
- Ensure the inclusion of civil society women, including rural and urban, at all stages of program design, planning, and implementation, thus supporting gender-responsive climate actions.
- Facilitate women's access to credit, information, and carbon fund markets so that they can learn about and decide which resources and technologies can satisfy their needs.²²⁵

221 *Ibid.*

222 *Ibid.*

223 *Ibid.*

224 *Ibid.*

225 *Ibid.*





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“Women are disproportionately vulnerable to the impacts of climate change, but their participation in decision making at all levels of climate action remains limited. The inclusion and involvement of women in decision-making is not only a fundamental right, but it also results in positive outcomes for men and women and for the planet.

This report, which makes an important contribution to the discourse on women and climate change, is well-timed. As the world takes action on climate change, there is a need, as the report demonstrates, to ensure that women are enabled to participate in the design and implementation of climate actions.”

- H.E. Mary Robinson, United Nations Special Envoy for Climate Change and President, Mary Robinson Foundation - Climate Justice



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