

CLIMATE AND GENDER JUSTICE IN SUB-SAHARAN AFRICA: EMERGING TRENDS POST-PARIS 2015

KEMI MILDRED HUGHES*

ABSTRACT

For many years, gender has been a hot topic in international environmental negotiations. Gender and climate activists have advocated for gender considerations to be accounted for in climate change adaptation and mitigation actions due to the heightened negative impacts of climate change on vulnerable groups, particularly women. The Paris Agreement, mutually agreed on by all parties to the United Nations Framework for Climate Change Convention (UNFCCC), expressly provides that countries are to apply gender-responsive measures to fighting climate change. However, there is no prescribed form for application of these gender-responsive measures, and countries must interpret and apply them in the context of their domestic realities. In sub-Saharan countries, particularly Nigeria, Mali, South Africa, and Rwanda, the implementation of gender-responsive adaptation and mitigation strategies is challenging due to the intrinsic power inequalities embedded in their patriarchal constructs. This study investigates climate change adaptation and mitigation efforts in these countries by examining laws, policies, and programs designed after 2015 to determine the extent to which women are included in these efforts. The human rights strands of climate justice theory, gender justice theories, and ecofeminist theories are used to support the findings of the study that women in sub-Saharan Africa bear the brunt of gender and climate injustice. The paper notes that climate-protection instruments and measures have the potential to exacerbate existing inequalities if they do not take full account of gender differences and gender relations. There is an urgent need for a holistic and balanced

* Kemi Hughes is a doctoral researcher in Climate Change Law and Sustainable Development and keenly interested in gender development in relation to climate change mitigation and adaptation. She has participated in gender fora at the UN Conference of the Parties on climate change and the International Union for Conservation of Nature Academy for Environmental Law.

approach that proffers inclusive strategies to narrow the gender gap and facilitate both gender and climate justice in legislation, policies, and programs using a bottom-up approach. The paper furthers the argument that women, although vulnerable to climate change impacts, are capable of presenting solutions from decision-making to the manufacturing of renewable energy technologies.

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INTRODUCTION

Since the signing of the Paris Agreement in 2015, parties to the United Nations Framework Convention on Climate Change have scurried about to fulfill their Nationally Determined Contributions (NDCs) toward mitigating and adapting to climate change impacts. Because the Paris Agreement mandates country-driven actions, countries must independently determine the best means to mitigate and adapt to climate change impacts.¹ The Paris Agreement also recommends a “gender-responsive approach,”² but what do countries interpret “gender-responsive” to mean? Have the efforts of these countries translated to gender and climate justice in line with the spirit and objectives of the Paris Agreement?

¹ The Paris Agreement regarding the United Nations Framework Convention on Climate Change, art. 4, Dec. 12, 2015, T.I.A.S. No. 16-1104.

² *Id.* at art. 7(5), 11(2).

Some interpretations of the links between climate change impacts and their effects on vulnerable groups, particularly women, narrowly focus on the actual impacts of the floods, droughts, or tropical storms, which physically and economically impede these vulnerable groups without further analysis. These interpretations have formed the basis of gender and climate justice concerns. Interpretations, particularly within the developing-country context, have scarcely considered the pre-existing social inequalities that exacerbate these climate change impacts on vulnerable groups in the first place. This paper considers the failure to address these entrenched social inequalities among genders and how this failure may undermine climate change mitigation and adaptation efforts, particularly within the sub-Saharan region.

At the global level, agitations around gender injustice caused and exacerbated by climate change impacts have steadily increased, resulting in the incorporation of climate change concerns on the agenda of international environmental organizations such as the UNFCCC. Scholars have recommended that mainstreaming gender in climate negotiations, particularly regarding adaptation and mitigation strategies,³ could prove beneficial. Other research has highlighted the potential of women as agents of change for environmental concerns.⁴ Studies reinforce women's special contributions to adaptation strategies based on their positional knowledge of ecological and water-related conditions.⁵ These strands of reasoning belong to the virtue and vulnerability arguments utilized in branches of ecofeminist theories that will be discussed further in the article.

Considerations for the foregoing culminated in the unprecedented, albeit sparse, reference to gender in the Paris Agreement. Taken together, Article 7(5) and Article 11(2) of the Paris Agreement provide that climate change mitigation and adaptation actions should be country-driven with efforts that are gender-responsive, participatory, and targeted at capacity building. This study investigates mitigation and adaptation actions

³ Valerie Nelson et al., *Uncertain Predictions, Invisible Impacts, and the Need to Mainstream Gender in Climate Change Adaptations*, 10 GENDER & DEV. 51, 56–58 (2002).

⁴ Irene Dankleman, *Women Organising for A Healthier Climate*, in GENDER & CLIMATE CHANGE: AN INTRODUCTION 223 (Irene Dankleman ed., 2010); Lorena Aguilar, *Establishing the Linkages between Gender and Climate Change Adaptation and Mitigation*, in GENDER & CLIMATE CHANGE: AN INTRODUCTION 173 (Irene Dankleman ed., 2010); Bernadette P. Resurrección, *Persistent Women and Environment Linkages in Climate Change and Sustainable Development Agendas*, 40 WOMEN'S STUD. INT'L F. 33, 40 (2013).

⁵ Patricia Figueiredo & Patricia E. Perkins, *Women and Water Management in Times of Climate Change: Participatory and Inclusive Processes*, 60 J. CLEANER PROD. 188, 188 (2013).

adopted among four countries within sub-Saharan Africa: Rwanda, Mali, Nigeria, and South Africa. This investigation aims to assess the extent to which climate and gender justice have been achieved in these countries using climate, ecofeminist, and gender justice theories. The paper does not explore the entire ambit of theories of climate justice and limits itself to the human-rights-based approach. The study acknowledges criticisms of the human-rights approach to climate change, but such criticisms do not compromise the fundamental argument of the article.

In terms of gender justice, the article acknowledges that gender covers a wide spectrum, but because it unpacks justice issues arising from an imbalance between mainstream genders, it will focus on the outcomes of these solutions from the female perspective in the sub-Saharan region. This research will use common linkages between climate, ecofeminist, and gender justice theories to ascertain if gender and climate justice have been achieved in sub-Saharan Africa post-2015. The article acknowledges the underlying differences among the four countries in terms of religious, political, and legal history but draws on the similarity of cultures, particularly regarding patriarchy. The theories are also utilized in assessing the implementation of Articles 7 and 11 of the Paris Agreement. The indicators for gender and climate justice are drawn from several scholarly articles that advance the climate and gender argument. The paper utilizes a desk-based review of legislation, policies, and programs within sub-Saharan Africa to assess emerging trends in the region against the backdrop of these theories.

I. CLIMATE CHANGE, GENDER, AND THE ECOFEMINIST PERSPECTIVE

Linkages between gender and climate change have emphasized either the vulnerability of women to climate change impacts or the virtue of women concerning their connection to the environment and their inherent drive to make it better. Some scholars correlate vulnerability with poverty, observing women to constitute a disproportionate share of poor people.⁶ Later studies have singled out rural women in developing

⁶ Terry Cannon, *Gender and Climate Hazards in Bangladesh*, 10 GENDER & DEV. 45 (2002); see generally Minu Hemmati & Ulrike Röhr, *Engendering the climate-change negotiations: experiences, challenges and steps forward*, in CLIMATE CHANGE AND GENDER JUSTICE 155, (Geraldine Terry ed., 2009).

countries to be at high risk of the negative impacts of climate change.⁷ Other angles to the vulnerability argument consider higher mortality rates of women during natural calamities caused by climate change and the lack of consideration for and participation of women in climate change processes and debates.⁸

The virtue strand underscores women's sensitivity to risk, preparedness for behavioral change, and likelihood to support ambitious climate change policies and measures.⁹ Johnsson-Latham's¹⁰ research revealed that women around the globe live more sustainably than men, leave smaller ecological footprints and contribute less to climate change.¹¹ The assertion that women leave smaller ecological footprints may not ring true in the sub-Saharan context due to the role women play as homemakers and food producers. Compared to women in developed countries, women in rural sub-Saharan Africa are not equipped with clean cooking mechanisms or mechanized agricultural tools that are more eco-friendly.¹² Women in sub-Saharan Africa make use of firewood and kerosene stoves that are detrimental to the environment and contribute to increased death of infants and mothers due to indoor noxious inhalation and explosions in the case of the latter.¹³

⁷ Amelia H.X. Goh, *A Literature Review of The Gender-Differentiated Impacts of Climate Change on Women's and Men's Assets and Well-Being in Developing Countries* (Collective Action & Prop. Rts., Working Paper No. 106, 2012); Tasokwa Kakota et al., *Gender Vulnerability to Climate Variability and Household Food Insecurity*, 4 CLIMATE & DEV. 298 (2011); UNEP, WOMEN AT THE FRONTLINE OF CLIMATE CHANGE: GENDER RISKS AND HOPES (A RAPID RESPONSE ASSESSMENT), U.N. Sales No. 12.III.D.2 (2012).

⁸ Nordic Council of Ministers, *Abstract from desk study on gender, gender equality, and climate change*, at 42, ANP 2009:765 (2009).

⁹ ALYSON BRODY ET AL., U.K. DEP'T FOR INT'L DEV., GENDER AND CLIMATE CHANGE: MAPPING THE LINKAGES, A SCOPING STUDY ON KNOWLEDGE AND GAPS (2008).

¹⁰ Gerd Johnsson Latham was a collaborating researcher at the United Nations Research Institute for Social Development and has several papers focusing on women and the ecology, climate change and poverty. See U.N. Rsch. Inst for Soc. Dev., *Gerd Johnsson-Latham*, [https://www.unrisd.org/unrisd/website/people.nsf/\(httpPeople\)/AB2CC8E4249B21E280257B4E0059252B?OpenDocument](https://www.unrisd.org/unrisd/website/people.nsf/(httpPeople)/AB2CC8E4249B21E280257B4E0059252B?OpenDocument) [<https://perma.cc/D4FN-NGSQ>].

¹¹ GERD JOHNSSON-LATHAM, ENV'T ADVISORY COUNCIL, A STUDY ON GENDER EQUALITY AS A PREREQUISITE FOR SUSTAINABLE DEVELOPMENT at 26, 30, 34 (2009).

¹² ELIZABETH CECLSKI, NAT'L RENEWABLE ENERGY LAB'Y, THE ROLE OF WOMEN IN SUSTAINABLE ENERGY DEVELOPMENT 13–15 (2000).

¹³ *Household Air Pollution and Health*, WORLD HEALTH ORGANIZATION [WHO] (2018), <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health> [<https://perma.cc/QCR5-3WY6>]; Nicholas Lam & Michael N. Bates, *Kerosene: A Review of Household Uses and their Hazards in Low- and Middle-Income Countries*, 15 J. OF TOXICOLOGY & ENV'T HEALTH 396 at 14–16 (2012).

While this article's thesis does not directly engage with the virtuousness strand of ecofeminist literature, it is important to recognize how this proposition has linked gender considerations to climate change. Specifically, the concept of virtuousness emphasizes the interconnectedness between women and the environment and theorizes that this connection motivates women to engage in eco-friendly practices. The ecofeminism perspective of linking the welfare of women to the welfare of the environment relies on historical underpinnings.¹⁴ Traditionally, ecofeminist theories ascribe the differences between the male and female genders to historic structures, cultural traditions, and social forces that position women as caregivers, subsistence providers, and collectors of resources needed by the household.¹⁵ The idea that this dynamic links the aforementioned role of women to the health of the environment is more prominent in developing countries such as those in sub-Saharan Africa. This article leans toward the branch of ecofeminism that links the patriarchal oppression of women and the destruction of the natural world by capitalist, male-dominated modern society.¹⁶ It goes further to support the proposition that women are both acute sufferers of climate change impacts and potential saviors of the ecosystem from rapid annihilation. This is particularly true for women in developing countries in the Global South, such as Nigeria, Mali, South Africa, and Rwanda.

Some scholars suggest that gravitating towards either virtuousness or vulnerability to advance gender concerns regarding climate change should be dissuaded as it "detracts attention from the problem that afflicts both the North and the South, and that is gender and power inequalities in decision-making in environmental management."¹⁷ Power inequalities in decision-making between mainstream genders and cultural mores that promote patriarchy are the major aspects of the vulnerability argument that the paper explores. Gaard¹⁸ encapsulates this position succinctly, stating that although women are most vulnerable to climate change impacts, this vulnerability is not innate but rather stems from the inequities produced

¹⁴ Trish Glazebrook, Karen Warren's Ecofeminism, 7 *ETHICS & ENV'T* 12, 12 (2002).

¹⁵ See Figueiredo, *supra* note 5; Karen J. Warren, *The Power and Promise of Ecological Feminism*, in *ECOLOGICAL FEMINIST PHIL.* 19, 22–24 (Karen J. Warren, ed., 1996).

¹⁶ Mary Mellor, *Feminism and Environmental Ethics: A Materialist Perspective*, 5 *ETHICS & THE ENV'T* 107, 110 (2000).

¹⁷ Seema Arora-Jonsson, *Virtue and vulnerability: Discourses on women, gender and climate change*, 21 *GLOB. ENV'T CHANGE* 744, 749 (2011).

¹⁸ Interview by Vegan Rainbow Project with Greta Gaard, Professor, University of Wisconsin–River Falls (Apr. 6, 2019) (Greta Gaard is an ecofeminist writer and her research advances conversations across fields of critical ecofeminism and climate justice).

through gendered social roles, discrimination, and poverty.¹⁹ It is ironic but proven that climate-protection instruments and measures have the potential to exacerbate existing inequalities if they do not take full account of gender differences and gender relations.²⁰ This paper acknowledges the perception of women as solely vulnerable and incapable of contributing to climate change solutions but argues that the direct impact of adverse climatic change on women enables them to offer adaptation and mitigation solutions. Buckingham, an ecofeminist scholar, buttresses this claim, stating that women's political representation and legitimacy in governing bodies can improve environmental stewardship.²¹ Some other scholarly work connects the political status of women to the ratification of environmental treaties and the protection of land, across nations.²² There have also been findings that women's integration into the upper echelons of management help create gender-sensitive initiatives and approaches to environmental management, particularly municipal waste management.²³

The next section explores the linkages between climate and gender justice. Some scholars have argued that there can be no climate justice without gender justice.²⁴ If this is valid, it is important to examine climate justice theories concerning gender. These theories are not explored in a vacuum but are contextualized within the current climate change challenges sub-Saharan countries encounter.

II. CLIMATE AND GENDER JUSTICE

Climate justice is a term that arose from movements concerned with climate change impacts and the analysis of the carbon economy as an indication of larger inequities created and exploited by global capital.²⁵ The emergence of climate change concerns aided the metamorphosis of

¹⁹ Greta Gaard, *Ecofeminism and Climate Change*, 49 *WOMEN'S STUD. INT'L F.* 20, 23 (2015).

²⁰ See Figueiredo, *supra* note 5.

²¹ Susan Buckingham, *Call in the Women*, 468 *NATURE* 502 (2010).

²² Kari Norgaard & Richard York, *Gender Equality and State Environmentalism*, 19 *GENDER & SOC'Y* 506 (2005) (speaking to the ratification of environmental treaties); Colleen Nugent & John M. Shandra, *State Environmental Protection Efforts, Women's Status, and World Polity: A Cross-National Analysis*, 22 *ORG. & ENV'T* 208, 211 (2009) (speaking to the protection of land).

²³ Susan Buckingham et al., *Wasting Women: The Environmental Justice of Including Women in Municipal Waste Management*, 10 *LOC. ENV'T: INT'L J. JUST. & SUSTAINABILITY* 427 (2005).

²⁴ See, e.g., Geraldine Terry, *No Climate Justice Without Gender Justice: An Overview of the Issues*, 17 *GENDER & DEV.* 5 (2009).

²⁵ David Schlosberg & Lisette B. Collins, *From Environmental to Climate Justice: Climate Change and the Discourse of Environmental Justice*, 5 *WIRES CLIMATE CHANGE* 359, 360–64 (2014).

environmental justice to climate justice, although the principles underlying both terms remain identical. Climate justice is defined as an environmental movement that ensures social, ecological, and economic justice for everyone who contributed least to causing global warming but are likely to suffer the most from it.²⁶ There are several approaches to climate justice that include historical disadvantage arguments, environmental rights-based arguments, per-capita equity approaches, development arguments, and political and human rights-based approaches.²⁷ This paper utilizes the human rights approach to climate justice.

Some climate justice advocates increasingly view climate change as a human rights issue, placing particular emphasis on how it intersects with the broader assemblage of race, gender, class, and power inequalities.²⁸ Meanwhile, other strands establish linkages between climate change, gender, and the uneven impacts of climate change, especially for those situated in the rural areas of developing nations.²⁹ Researchers arguing from the human rights perspective identified the adverse impact of climate change on education, socio-health, and economic rights.³⁰

Simon Caney,³¹ for example, argued that climate change is simply a new way to violate basic human rights, and if these collective human rights are already agreed to by the world, it only follows that they should be upheld in the face of climate change threats.³² This study adopts

²⁶ Chitresh Saraswat & Pankaj Kumar, *Climate Justice in Lieu of Climate Change: A Sustainable Approach to Respond to the Climate Change Injustice and an Awakening of the Environmental Movement*, 1 ENERGY, ECOLOGY & ENV'T 67, 67 (2016).

²⁷ Darrell Moellendorf, *Climate Change and Global Justice*, 3 WIRES CLIMATE CHANGE 131, 132-35, 139 (2012); Kenneth E. Shockley, *A Gentle Critique of the Greenhouse Development Rights Framework*, 4 WIRES CLIMATE CHANGE 225, 226-28 (2013).

²⁸ Harriet Bulkeley et al., *Climate Justice and Global Cities: Mapping the Emerging Discourses*, 23 GLOB. ENV'T CHANGE 914 (2013); Simon Caney, *Climate change, human rights and moral thresholds*, in HUM. RTS. & CLIMATE CHANGE 69 (Steph Humphreys ed., 2009).

²⁹ I.E.M. Dankleman & W.H.M. Jansen, *Gender, Environment and Climate Change: understanding the linkages*, in GENDER & CLIMATE CHANGE: AN INTRODUCTION, (Irene Dankleman ed., 2010); LORENA AGUILAR, IUCN: THE WORLD CONSERVATION UNION, GENDER MAKES THE DIFFERENCE: CLIMATE CHANGE AND DISASTER MITIGATION (2012).

³⁰ Ted Benton, *Ecology, community and justice*, in JUSTICE, PROPERTY AND THE ENVIRONMENT 17 (T. Hayward & J. O'Neill eds., 1997); Chukwumerije Okereke, *Moral Foundations for Global Environmental and Climate Justice*, 69 ROYAL INST. OF PHIL. SUPPLEMENT, 117 (2011).

³¹ Simon Caney, *Simon Caney Biography*, SIMON CANEY, Simon Caney - Home (weebly.com) (Simon Caney is a Professor of Political Theory and works on ethical issues around climate change, inequality, and obligations to future generations).

³² Simon Caney, *Cosmopolitan Justice, Rights and Global Climate Change*, 19 CAN. J. L. & JURISPRUDENCE 255, 264, 268, 270, 273, 275, 278 (2006).

Caney's contextualization of climate justice from a human rights perspective. Caney further notes that climate change jeopardizes three key human rights: the right to life, the right to health, and the right to subsistence.³³ In terms of the violation of the right to life, Caney notes that the flooding and landslides produced by climate change have caused many deaths.³⁴ For example, in 2019 alone, landslides, flash floods, and heavy rain caused forty-five deaths and destroyed many homes in Kigali, Rwanda.³⁵ In Nigeria, massive emigration and resettlement of people to areas less threatened by desertification have exacerbated communal and inter-ethnic clashes among herdsmen and farmers, sometimes resulting in death.³⁶

Climate change affects vulnerable groups in South Africa directly and indirectly. One example of a direct impact is the effect of extreme weather temperatures on pregnant women and persons over sixty-five years old.³⁷ Indirect impacts include effects mediated through natural systems, such as the association between rising temperatures, precipitation changes, and increasing rates of infectious disease.³⁸ Again, Caney presents a hypothesis that all persons have a human right preventing other people from creating serious threats to their health.³⁹ In other words, engaging in activities that create health hazards for others constitutes a severe failure to recognize the inherent dignity of all individuals. Caney's hypothesis does not consider self-sabotage where victims unwittingly contribute to activities that create health hazards. To clarify, an example of self-sabotage within the sub-Saharan context is exposure to carbon monoxide from cooking with firewood and kerosene that has killed women and children.⁴⁰ The World Health Organization reported that

³³ *Id.*

³⁴ *Id.* at 258.

³⁵ BBC NEWS, *Rwanda Climate Change: Kigali Homes Built Near Wetlands are Destroyed*, BBC, (Dec. 16, 2019), <https://www.bbc.com/news/world-africa-50813776> [<https://perma.cc/L5JM-4JS6>].

³⁶ Elisha Ikpe et al., *Evidence of Climate Change and Adaptation Strategies Among Grain Farmers in Sokoto State, Nigeria*, 11 IOSR J. OF ENV'T SCI., TOXICOLOGY & FOOD TECH. 1 (2017); Nkechi Onah et al., *Mitigating Climate Change in Nigeria: African Traditional Religious Values in Focus*, 7 MEDITERRANEAN J. OF SOC. SCI. 299 (2016); Dennis Amobi & Tony Onyishi, *Governance and Climate Change in Nigeria: A Public Policy Perspective*, 9 J. OF POL'Y & DEV. STUD. 199, 206 (2015).

³⁷ Matthew Chersich et al., *Impacts of Climate Change on Health and Wellbeing in South Africa*, 15 INT'L J. OF ENV'T RSCH. & PUB. HEALTH at 1–2, 6 (2018).

³⁸ *Id.*

³⁹ Caney, *supra* note 32, at 264, 270, 275.

⁴⁰ See *Household Air Pollution and Health*, *supra* note 13.

around 3 billion people, who are poor and living in low and middle-income countries, still cook using solid fuels that produce high levels of household air pollution with a range of health-damaging pollutants, including small soot particles that penetrate deep into the lungs.⁴¹ This exposure is particularly high among women and young children. Another study estimated that 120 million Nigerians are vulnerable to illness and death from exposure to cooking smoke⁴² with women and children suffering greater exposure due to their roles in preparing food.⁴³ Although scholars like Arora-Jonsson and Listo⁴⁴ critique these positions as either myth or portraying women in a disadvantageous position that fails to remedy issues of gender inequalities, these health issues exist, can be linked to climate change, and require urgent redress.⁴⁵

Caney's final hypothesis is that all persons have a human right that other people do not act to deprive them of their means of subsistence.⁴⁶ Although Caney's hypothesis explores the damaging environmental consequences arising from developed countries' industrial activities and their impact on the subsistence needs of developing countries that rely mostly on agriculture, this position could be analyzed using a different lens. This paper considers Caney's hypothesis at a national level, examining state attempts to fulfill the mitigation and adaptation objectives of the Paris Agreement. The quasi-implementation efforts of these national governments in sub-Saharan countries often ignore evident gender inequalities in their domestic implementation strategies. In the domestic context, the failure of the government to consider the effect of climate change on the subsistence of women, particularly in female-headed

⁴¹ *Id.*

⁴² Olanike Olugboji, *Women in Nigeria Should Not Have to Risk Their Health to Feed Others*, TIME (Apr. 26, 2016), <https://time.com/4305412/nigeria-women-firewood-health-risks/> [<https://perma.cc/599Q-P3GJ>].

⁴³ Benjamin K. Sovacool, *The Political Economy of Energy Poverty: A Review of Key Challenges*, 16 ENERGY FOR SUSTAINABLE DEV. 272, 275–76 (2012); Varinder S. Waris & Prakash Antahal, *Fuelwood Scarcity, Poverty and Women: Some Perspectives*, 19 INT'L ORG. SCI. RSCH. J. HUMANS. & SOC. SCI. 21, 28–30 (2014).

⁴⁴ Seema Arora-Jonsson is a professor in Rural Development with research interests in gender, environment, and climate politics. *Seema Arora-Jonsson*, Swedish University of Agricultural Sciences, <https://www.slu.se/en/ew-cv/seema-arora-jonsson/> [<https://perma.cc/D38B-5LVK>] (last visited Feb. 3, 2021). Romy Listo's research interests are in gender roles and relations. *Ms Romy Listo*, The University of Queensland, <https://social-science.uq.edu.au/profile/228/romy-listo> [<https://perma.cc/8V8W-K8KN>] (last visited Feb. 3, 2021).

⁴⁵ Romy Listo, *Gender Myths in Energy Poverty Literature: A Critical Discourse Analysis*, 38 ENERGY RSCH. & SOC. SCI. 9, 13–15 (2018); *See Household Air Pollution and Health*, *supra* note 13.

⁴⁶ Caney, *supra* note 32, at 259.

households, amounts to a violation of that human right. Again, using Caney's hypothesis, placing the burden of caring for family members squarely on women who have limited access to natural resources, particularly land in Sub-Saharan Africa, violates their subsistence rights. Because many rural women depend on produce from agricultural land to feed their families, subsistence is impeded when limitations are placed on access to these lands. Agostino⁴⁷ suggests that gender inequalities, characterized by the lack of access to these necessary resources, create justice issues.⁴⁸ Whitehead and Tsikata⁴⁹ note that in addition to limited accessibility to land resources for agricultural production, women also face other barriers such as the inability to access working capital, inputs, and credits.⁵⁰

One way to ensure climate justice captures the important gender considerations mentioned above is to understand climate justice as the link between "human rights and development to achieve a human-centered approach, safeguarding the rights of the most vulnerable, and sharing the burdens and benefits of climate change and its resolution equitably and fairly."⁵¹ Conversely, a violation of any of the human rights outlined by Caney that result in the untold suffering of the vulnerable, in this case, women, constitutes climate injustice. Further, gender injustice exists whenever one gender suffers more than the other from the negative impacts of climate change, or when one gender is restricted from participating in consultations around solutions to climate change effects. This feminist ethical approach to climate justice that challenges

⁴⁷ Ana Agostino was a program analyst at the UNDP in Uruguay and consults on issues of development, gender, environment, and human rights. Ana Agostino, *Gender Equality, Climate Change and Education for Sustainability*, EQUALS. N., (Feb. 2010), https://cdn.atria.nl/ezines/IAV_606069/IAV_606069_2010_24.pdf [<https://perma.cc/F3AC-FMDK>].

⁴⁸ *Id.*

⁴⁹ Ann Whitehead is an emeritus professor in international development in the University of Sussex who has conducted gender related research in agriculture in sub-Saharan Africa. *Ann Whitehead*, UNRISD, [https://www.unrisd.org/unrisd/website/people.nsf/\(httpPeople\)/7C25785A57DB4A92C1256BAE002B6DCC?OpenDocument](https://www.unrisd.org/unrisd/website/people.nsf/(httpPeople)/7C25785A57DB4A92C1256BAE002B6DCC?OpenDocument) [<https://perma.cc/S7PZ-RFL2>] (last visited Feb. 3, 2021). Dzodzi Tsikata is a Ghanaian feminist, academic and professor of African Studies at the University of Ghana. *Professor Dzodzi Tsikata*, University of Ghana, <https://ias.ug.edu.gh/content/professor-dzodzi-tsikata> [<https://perma.cc/GAL6-E9FV>] (last visited Feb. 3, 2021).

⁵⁰ Ann Whitehead & Dzodzi Tsikata, Policy Discourses on Women's Land Rights in Sub-Saharan Africa: The Implications of the Return to the Customary, 3 J. AGRARIAN CHANGE 67, 68, 76 (2003).

⁵¹ SUMUDU ATAPATTU & ANDREA SCHAPPER, HUMAN RIGHTS AND THE ENVIRONMENT: KEY ISSUES (2019).

distributive models that overlook gender relations, environments, and species is currently developing.⁵²

A. CLIMATE, GENDER JUSTICE CONCERNS, AND THE PARIS AGREEMENT

Gender equality regarding climate concerns is served best by a functioning international climate protection system.⁵³ An examination of the Paris Agreement reveals the utilization of the word “gender” in three different sections. The first refers to gender equality, stating that parties must take into consideration their human rights obligations, local communities, gender equality, female empowerment, and intergenerational equity when acting to address climate change.⁵⁴ The second mention is contained in the provision that adaptation actions should follow a country-driven, gender-responsive, participatory, and fully transparent approach.⁵⁵ The third also provides that capacity building should be gender-responsive, participatory, and country-driven.⁵⁶

The Paris Agreement has been criticized for its inherent non-binding nature, particularly in terms of emissions reduction.⁵⁷ Its non-binding nature presents a justice issue where it is perceived to be unjust in terms of implementation. An example is the loss and damage provision designed to be the main vehicle of the UNFCCC process to avert, minimize, and address loss and damage associated with climate change impacts.⁵⁸ Although the Paris Agreement addresses the contentious issue of loss and damage caused by climate change impacts from a corrective justice perspective, there are no express modalities for liabilities or compensation. This issue remains unresolved, as there was no concrete consensus in the just-concluded 25th session of the Conference of Parties on Article 8 of the Paris Agreement, which embodies the loss and damage provision in the Warsaw International Mechanism for Loss and Damage

⁵² Warren, *supra* note 15, at 126–27.

⁵³ Geraldine Terry, *No Climate Justice Without Gender Justice: An Overview of the Issues*, 17 GENDER & DEV. 5, 15 (2009).

⁵⁴ See Paris Agreement, *supra* note 1, at pmbl.

⁵⁵ *Id.* at art. 7(5).

⁵⁶ *Id.* at art. 11(2).

⁵⁷ Rosemary Lyster, *Climate Justice, Adaptation and The Paris Agreement: A Recipe for Disasters*, 26 ENV'T POL. 438, 447 (2017).

⁵⁸ U.N. Framework Convention on Climate Change, *Introduction to Loss and Damage*, <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction-to-loss-and-damage> [<https://perma.cc/KSR8-KC4J>] (last visited Feb. 3, 2021).

(WIM).⁵⁹ The main driver of this issue is governance. Developing countries maintain that both the UNFCCC and the Paris Agreement processes should continue to govern the work on loss and damage, whereas most developed countries favor the view that the work on loss and damage should be undertaken solely under the Paris Agreement.⁶⁰ It is inferred that developed countries want a lax and non-binding governance structure that may likely result in climate injustice, particularly where developed countries fail to aid mitigation and adaptation actions in developing countries. Developing countries, on the other hand, prefer governance from both the Paris Agreement and the UNFCCC in hopes that developed countries would be more compelled to continue supporting the development and implementation of measures to “avert, minimize and address the adverse impacts of climate change.”⁶¹ If developed countries continue to thwart their climate obligations by failing to support mitigation and adaptation efforts in developing countries, all countries will suffer. From the foregoing, there is a clear climate justice issue with the Paris Agreement even though it intends to facilitate climate justice equitably. We will now turn to gender justice vis-à-vis the Paris Agreement.

The term gender justice is often associated with notions of women’s empowerment, women’s rights, gender equality, and gender equity.⁶² It is difficult to define gender justice, primarily because it consists of an entire spectrum, not limited to male or female alone. In addition, justice cuts across many social categories of wealth, class, ethnicity, et cetera. Consequently, this paper engages with power relations in Mali, Nigeria, Rwanda, and South Africa. These power relations transcend the domestic arena and pervade most economic, social, and political institutions.

The Paris Agreement escapes major criticism in fulfilling or driving the “gender justice” agenda. The Agreement places the

⁵⁹ Simon Evans & Josh Gabbatiss, *COP25: Key Outcomes Agreed at the UN Climate Talks in Madrid*, CARBON BRIEF (Dec. 15, 2019), <https://www.carbonbrief.org/cop25-key-outcomes-agreed-at-the-un-climate-talks-in-madrid> [<https://perma.cc/SQ7L-ULRL>].

⁶⁰ Morten Broberg, *Interpreting the UNFCCC’s Provisions on ‘Mitigation’ and ‘Adaptation’ in the Light of the Paris Agreement’s Provision on ‘Loss and Damage.’* 20 CLIMATE POL’Y 527, 527 (2020).

⁶¹ Dawn Pierre-Nathaniel et al., *Loss and Damage at COP25 - A Hard Fought Step in the Right Direction* CLIMATE ANALYTICS (Dec. 20, 2019), <https://climateanalytics.org/blog/2019/loss-and-damage-at-cop25-a-hard-fought-step-in-the-right-direction/> [<https://perma.cc/2DCU-4PCC>].

⁶² Anne Marie Goetz, *Gender Justice, Citizenship and Entitlements: Core Concepts, Central Debates and New Directions for Research*, in GENDER, JUST. & DEV. 15, 17 (Maitrayee Mukhopadhyay & Navsharan Singh eds., 2007).

responsibility of ensuring gender-responsive actions toward climate change mitigation and adaptation squarely in the lap of countries. This means that at the level of the international environmental regime, there are no binding provisions under which countries must design climate change strategies that incorporate gender-responsive and equitable mitigation and adaptation solutions. If gender justice provisions are not binding at the international level vis-à-vis the Paris Agreement, can there be climate justice? Nonetheless, because country-driven approaches have been recommended by the international environmental regime, we will now turn to climate change efforts within sub-Saharan Africa.

III. EMERGING TRENDS IN MITIGATION AND ADAPTATION ACTIONS IN SUB-SAHARAN AFRICA POST-2015

Climatic change in the sub-Saharan region takes the form of temperature changes, heat extremes, precipitation changes, aridity, potential evapotranspiration, and sea-level rise—which a study projected to substantially increase even under a low-emission scenario.⁶³ The developing sub-Saharan region has vast ecological, climatic, and cultural diversity.⁶⁴ This means that climatic changes will take different forms in different countries within the region, although there will be some similarities. In South Africa, extreme weather events are the most noticeable impacts of climate change in areas like the Western Cape, in addition to rises in water and vector-borne diseases such as malaria, cholera, Avian influenza, et cetera.⁶⁵ South Africa is currently experiencing the strongest decrease in precipitation with concurrent risks of drought.⁶⁶ Climate change mitigation in South Africa is a struggle for the government, particularly because of its energy-intensive economy and reliance on coal.⁶⁷

⁶³ Olivia Serdeczny et al., *Climate Change Impacts in Sub-Saharan Africa: From Physical Changes to Their Social Repercussions*, 17 REG'L ENV'T CHANGE 1585, 1585–89 (2017).

⁶⁴ ALBERTO MAVUME ET AL., CLIMATE CHANGE ADAPTATION AND RESILIENCE IN AFRICA: RECOMMENDATIONS TO POLICYMAKERS 1 (Lisa F. Ramsay & Daniel Olago eds., 2015).

⁶⁵ Matthew F. Chersich & Caradee Y. Wright, *Climate Change Adaptation in South Africa: A Case Study on the Role of the Health Sector*, 15 GLOBALIZATION & HEALTH 22 (2019). Thandi Kapwata et al., *Current and Potential Future Seasonal Trends of Indoor Dwelling Temperature and Likely Health Risks in Rural Southern Africa*, 15 INT'L J. ENV'T RSCH. & PUB. HEALTH 16 (2018).

⁶⁶ Dan Shepard, *Global warming: severe consequences for Africa*, AFR. RENEWAL (Dec. 2018), <https://www.un.org/africarenewal/magazine/december-2018-march-2019/global-warming-severe-consequences-africa> [<https://perma.cc/K8H3-NAXL>].

⁶⁷ B.C. Chikulo, *Gender, Climate Change and Energy in South Africa: A Review*, 12 GENDER & BEHAV. 5957, 5958 (2014).

Across sub-Saharan Africa, agricultural production is significantly susceptible to the effects of climate change, with rain-fed agriculture accounting for approximately 96 percent of overall crop production.⁶⁸ This is because of the high dependence on precipitation and crop sensitivities to maximum temperatures during the growing season that affects the region's agriculture.⁶⁹ In Rwanda, a study conducted in 2016 predicted that despite projected wetter climate conditions, potential increased evapotranspiration will take over, resulting in a water availability deficit for agriculture.⁷⁰ This is precarious for Rwanda's system of rain-fed agriculture in which the potential evapotranspiration that exceeds precipitation will extend to ten months as opposed to the current four months.⁷¹ Other concomitant effects are drought and food insecurity. Farmers in Mali have reported increased frequency in floods, drought, temperature, and prolonged dry season.⁷² Nigeria suffers the same changes in climatic conditions.⁷³ A close examination of the case studies within the sub-Saharan region reveals that women are affected by and inadvertently contribute to climate change disasters, primarily in the agricultural and energy sector.

It is important to note that adverse climate change impacts on agriculture affect rural and urban women differently. While there are a few studies on the impacts of flooding, heatwaves, and displacement on urban women,⁷⁴ there is abundant literature on how these impacts affect rural women, particularly in the agricultural and natural resource sectors.⁷⁵ In

⁶⁸ Sarah Chapman et al., *Impact of Climate Change on Crop Suitability in Sub-Saharan Africa in Parameterized and Convection-permitting Regional Climate Models*, 15 ENV'T RESOL. LETTERS 9 (2020).

⁶⁹ Senthold Asseng et al., *The Impact Of Temperature Variability On Wheat Yields*, 17 GLOB. CHANGE BIOLOGY 997, 997–1012 (2011); David B. Lobell & Sharon M. Gourdjji, *The Influence of Climate Change on Global Crop Productivity*, 160 PLANT PHYSIOLOGY 1686, 1686–87 (2012).

⁷⁰ Mohammed Haggag et al., *Projections of Precipitation, Air Temperature and Potential Evapotranspiration in Rwanda Under Changing Climate Conditions*, 10 AFR. J. ENV'T SCI. & TECH. 19, 32 (2016).

⁷¹ *Id.* at 31.

⁷² Dejene K. Mengistu, *Farmers' Perception and Knowledge of Climate Change and Their Coping Strategies to The Related Hazards: Case Study from Adiha, Central Tigray, Ethiopia*, 2 AGRIC. SCI. 138, 138, 140 (2011).

⁷³ Peter Akpodiogaga-a Ovuoyoviroye Odjugo, *General Overview of Climate Change Impacts in Nigeria*, 29 J. HUM. ECOLOGY 47, 48, 52 (2010).

⁷⁴ Idowu Ajibade et al., *Urban Flooding in Lagos, Nigeria: Patterns of Vulnerability and Resilience among Women*, 23 GLOB. ENV'T CHANGE 1714, 1714–15 (2013).

⁷⁵ Alice Nabalamba et al., *Climate Change, Gender and Development in Africa*, AFR. DEV. BANK (2011),

https://www.afdb.org/sites/default/files/documents/publications/climate_change_gender_and_de

South Africa, women constitute the majority of subsistence farmers in the agricultural sector.⁷⁶ Although agriculture contributes only about 1.88 percent to the country's GDP, it makes up the source of livelihood for more than 70 percent of the country's labor force.⁷⁷ The adaptive capacities of South African women in the agricultural sector are impeded by cultural and socioeconomic factors such as access to financial assets and land ownership.⁷⁸ A study conducted among the potato and cabbage growers found that lack of adequate rainfall affected production and consequently subsistence.⁷⁹ In Rwanda, 57 percent of the agricultural workforce is made up of women who are also primarily responsible for their households' water availability and food security.⁸⁰ Sadly, these women bear the most negative climate change impacts exacerbated by power imbalances between men and women.

Eighty percent of the Malian population is engaged in farming;⁸¹ however, there is no definite statistic of what percentage women constitute of the 80 percent. According to the World Bank, 62 percent of Malian women are employed in the agricultural sector.⁸² The plight of women in Mali is particularly challenging as their cultural gender-assigned roles prove detrimental in the face of climate change concerns. Women in Mali produce food crops as opposed to their male counterparts who produce cash crops; however, the women are mostly unpaid for this work or paid

velopment_in_africa.pdf [https://perma.cc/TET8-6F4U]; Eleni Mordoukoutas, *Women grapple with harsh weather*, AFR RENEWAL (Aug.–Nov. 2016), <https://www.un.org/africarenewal/magazine/august-2016/women-grapple-harsh-weather> [https://perma.cc/69R7-UDV3].

⁷⁶ Yemisi I. Ogunlela & Aisha A. Mukhtar, *Gender Issues in Agriculture and Rural Development in Nigeria: The Role of Women*, 4 HUM. & SOC. SCI. J. 19, 21 (2009).

⁷⁷ STATISTA, *South Africa: Distribution of gross domestic product (GDP) across economic sectors from 2009 to 2019*, <https://www.statista.com/statistics/371233/south-africa-gdp-distribution-across-economic-sectors/#:~:text=In%202019%2C%20agriculture%20had%20contributed,the%20total%20value%20added%2C%20respectively.> [https://perma.cc/R27W-53PE] (last visited Feb. 3, 2020).

⁷⁸ T. Hart & M. Aliber, *Inequalities in Agricultural Support for Women in South Africa*, HUM. SCI. RSCH. COUNCIL (November 2012), <http://repository.hsrb.ac.za/handle/20.500.11910/3235> [https://perma.cc/48G4-FA37]; see also Agostino, *supra* note 47.

⁷⁹ Zelda A. Elum et al., *Farmer's Perception of Climate Change and Responsive Strategies in Three Selected Provinces of South Africa*, 2017 CLIMATE RISK MGMT. 246, 253–55 (2016).

⁸⁰ FOOD AND AGRIC. ORG. U.N., *The future of food and agriculture—Trends and challenges* (2017) <http://www.fao.org/3/a-i6583e.pdf> [https://perma.cc/9SQM-JLEJ].

⁸¹ U.S. AGENCY FOR INT'L DEV., *Agriculture and Food Security*, <https://www.usaid.gov/mali/our-work/agriculture-and-food-security> [https://perma.cc/4V9C-YML8] (last visited Jan. 12, 2021).

⁸² WORLD BANK, *Employment in agriculture, female (% of female employment) (modeled ILO estimate)*, <https://data.worldbank.org/indicator/SL.AGR.EMPL.FE.ZS> [https://perma.cc/6WBC-S73X] (last visited Jan. 12, 2021).

very little.⁸³ Malian women who are paid for their work do not generally determine how their income is spent and must instead defer to their husbands or other male family members who determine how the money from their work is allocated.

Due to the landlocked nature of Mali, drought is a common climate change consequence there. Malian women are often encumbered with the arduous task of fetching water for the family and the crops that they tend, often from far locations. Ironically, women are not involved in the decision-making process about water concerns even though they are affected more by water scarcity due to their societal roles.⁸⁴

More unsettling is the fact that Malian women have little or no access to land, as men are prioritized in land allocation.⁸⁵ This means that even if women want to increase agricultural productivity and income, they cannot. In addition to unequal access to land, women also have unequal access to agricultural inputs, technology, and extension policies that result in smaller farm yields among women compared to men.⁸⁶ The UNFCCC secretariat reports issues of intersectionality where women in Mali not only have to cope with the urban migration of men but are also left to fend for the family and do male labor without corresponding male rights to secure tenure or command over financial resources.⁸⁷

Climate change negatively affects the agricultural sector in Nigeria that accounts for 21.2 percent of Nigeria's GDP.⁸⁸ Although the oil and gas industry is the highest contributor to Nigeria's GDP, the agricultural sector is very important and women make up close to 72

⁸³ U.S. AGENCY FOR INT'L DEV. & SPRING, *Agriculture and Nutrition in Mali Through a Gender Lens: A Qualitative Study*, at ix, 10 (Mar. 2016), <https://www.spring-nutrition.org/publications/reports/agriculture-and-nutrition-mali-through-gender-lens> [<https://perma.cc/JN3F-YQ72>] [hereinafter *Agriculture and Nutrition through a Gender Lens*].

⁸⁴ *Id.* at ix.

⁸⁵ *Id.* at 10.

⁸⁶ Amber Peterman et al., *A Review of Empirical Evidence on Gender Differences in Non-Land Agricultural Inputs, Technology, and Services in Developing Countries* 4, 11 (Int'l Food Pol'y Rsch. Inst., Working Paper No. 11-11, 2011).

⁸⁷ U.N. Subsidiary Body for Implementation, *Differentiated impacts of climate change on women and men; the integration of gender considerations in climate policies, plans and actions; and progress in enhancing gender balance in national climate delegations*, U.N. Doc. FCCC/SBI/2019/INF.8 (June 12, 2019).

⁸⁸ H. Plecher, *Distribution of gross domestic product (GDP) across economic sectors Nigeria 2019*, <https://www.statista.com/statistics/382311/nigeria-gdp-distribution-across-economic-sectors/> [<https://perma.cc/NQ36-R89L>] (last visited Jan. 12, 2021).

percent of the agricultural workforce.⁸⁹ Nigerian women, particularly those living in rural areas, experience the same challenges associated with patriarchal societies and these challenges affect their adaptive capacities to climate change. Many Nigerian women face marginalization in terms of access to and ownership of land⁹⁰ that is exacerbated by the traditional land tenure system, which upholds the inheritance rights of males who are usually legatees to family land.⁹¹

Turning from the vulnerabilities experienced by sub-Saharan women stemming from negative climate change impacts, this section will briefly discuss the unintended contribution of women to climate change and highlight the urgent need to incorporate them in mitigation and adaptation outcomes. A fair amount of scholarly literature has covered the role of women in developing countries as homemakers and providers extensively, particularly in portraying them as vulnerable to climate change impacts.⁹² This section does not depart from this perception; it rather adds that, although dealt with unfavorable cards, women are pivotal in emissions-reduction strategies.

The Paris Agreement enjoins *all parties* (emphasis mine) to undertake ambitious efforts to combat climate change and adapt to its effects.⁹³ Although the whole of Africa accounts for only 3.8 percent of the share of global greenhouse gases (GHGs), sub-Saharan Africa is most vulnerable to climate change impacts.⁹⁴ Barring oil and gas-related extraction and production, the use of coal and other traditional biomass fuels accounts for the largest contributor to greenhouse emissions.⁹⁵ Particularly, the heavy use of firewood has greatly contributed to

⁸⁹ PREMIUM TIMES, *Nigeria: Women Contribute 70 Percent of Agricultural Workforce – AfDB* (Oct. 19, 2015), <https://allafrica.com/stories/201510200002.html> [<https://perma.cc/34KK-74V6>].

⁹⁰ Taiwo Ajala, *Gender Discrimination in Land Ownership and the Alleviation of Women's Poverty in Nigeria: A Call for New Equities*, 17 INT'L J. DISCRIMINATION AND L. 51 (Apr. 6, 2017).

⁹¹ Chidiebere J. Onwutuebe, *Patriarchy and Women Vulnerability to Adverse Climate Change in Nigeria*, SAGE OPEN (2019), <https://journals.sagepub.com/doi/full/10.1177/2158244019825914> [<https://perma.cc/U5W8-NVWS>].

⁹² See Eric Neumayer & Thomas Plümper, *The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002*, 97 ANNALS ASS'N AM. GEOGRAPHERS 551, 552 (2008); See also Figueiredo & Perkins, *supra* note 5; Helene Oldrup & Michala Breengaard, *Gender and Climate Change*, NORDEN (2009).

⁹³ The Paris Agreement, *supra* note 1, at art. 3.

⁹⁴ William Adzawla, et al., *Greenhouse Gases Emission and Economic Growth Nexus of Sub-Saharan Africa*, 3 SCI. AFR. 1, 3 (2019).

⁹⁵ EPA, *Global Greenhouse Emissions Data*, <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data> [<https://perma.cc/N9QU-SJVD>] (last visited Jan. 13, 2021).

aggregate carbon emissions.⁹⁶ Seventy percent of the sub-Saharan population uses charcoal and biomass for their cooking and energy needs accounting for over four million deaths and massive forest depletion.⁹⁷ Women are in the center of the causes and effects of using these solid fuels. Frequently, women in sub-Saharan Africa cook with wood over open fires in enclosed spaces, causing respiratory illnesses and also outside their homes contributing to GHGs. Further, in rural areas, kerosene lamps and firewood are also used as sources of energy for lighting and warming purposes.

It is therefore imperative for women to be involved in decision making regarding climate change mitigation and adaptation strategies. In addition to being involved in decision-making, societal structures and arrangements that promote patriarchal proclivities putting women in disadvantaged positions need a major overhaul. Females must be engaged in manufacturing and utilizing clean cooking technologies using bio-ethanol for instance,⁹⁸ as it aids emissions-reductions in line with Paris Agreement objectives. Further, training of women in sustainable agricultural practices and providing them with land, mechanized farming tools, investment credits, and access to cooperative funds will reduce agricultural workload and increase the productivity and lifespan of sub-Saharan African women.⁹⁹

Relying on linkages between climate and gender justice from the lens of Robeyns' capability approach,¹⁰⁰ this paper suggests that sub-Saharan women are capable of adapting to and mitigating climate change

⁹⁶ Wisdom Akpalu et al., *Demand for Cooking Fuels in A Developing Country to What Extent do Taste and Preferences Matter?* 1 (St. Univ. N.Y., Working Paper No. 243, 2011); see generally Esther Duflo et al., *Indoor Air Pollution, Health and Economic Wellbeing*, 1 SAPIENS 7, 7–8 (2008).

⁹⁷ UNICEF, *Clear the Air for Children: The Impact of Air Pollution on Children* (Oct. 2016), https://www.unicef.org/publications/files/UNICEF_Clear_the_Air_for_Children_30_Oct_2016.pdf [<https://perma.cc/4WD5-QFRH>]; Miyuki Iiyama et al., *The Potential of Agroforestry in the Provision of Sustainable Woodfuel in Sub-Saharan Africa*, 6 CURRENT OP. ENV'T SUSTAINABILITY 138, 139 (2014).

⁹⁸ Shakespear Mudombi et al., *User Perceptions about the Adoption and Use of Ethanol Fuel and Cookstoves in Maputo, Mozambique*, 44 ENERGY FOR SUSTAINABLE DEV. 97, 98 (2018).

⁹⁹ See generally Ruth Meinzen-Dick, *Investing in Africa's female farmers helps their kids, communities and economies*, WORLD ECON. F. (Oct. 18, 2019), <https://www.weforum.org/agenda/2019/10/challenges-facing-africas-female-farmers> [<https://perma.cc/5K2P-P4WE>]; Caroline Sweetman, *Editorial*, in WOMEN, LAND, AND AGRICULTURE (1999).

¹⁰⁰ Ingrid Robeyns, *The Capability Approach: A Theoretical Survey*, 6 J. HUM. DEV. 93, 93 (Mar. 2005); Ingrid Robeyns, *Sen's Capability Approach and Gender Inequality: Selecting Relevant Capabilities*, 9 FEMINIST ECON. 61, 64 (2003).

impacts. The capability approach is a broad framework that evaluates and assesses individual well-being and social arrangements, policy designs, and proposals about social change in society. This approach is useful for evaluating the inequalities and wellbeing of members of a group. Over the years, both Sen and Nussbaum have offered varied positions on capabilities as relates to justice, and these positions can be applied to issues concerning climate change and climate justice concerns.¹⁰¹ Put differently, the capacity to manage risks and adapt to climate change is unevenly distributed, which in effect raises climate justice concerns. Contextualizing the above between mainstream genders, it would mean that if women have the same capacity as men to cope with climate change impacts, it creates a level playing field among both genders that fosters gender justice and, by extension, climate justice at the national level. Climate justice in this sense refers to a human-centered approach that safeguards the rights of the most vulnerable and shares the burdens and benefits of climate change and its resolution equitably and fairly.¹⁰² The next section utilizes gender and climate justice parameters garnered from various literature as a backdrop against mitigation and adaptation actions to determine fulfilment of Article 7(5) and Article 11(2) of the Paris Agreement.

A. A REVIEW OF MITIGATION AND ADAPTATION ACTIONS AND OUTCOMES IN SUB-SAHARAN AFRICA THROUGH THE LENS OF THE PARIS AGREEMENT

Article 7(5) of the Paris Agreement provides

... that adaptation actions should follow a country-driven, gender-responsive, participatory, and fully transparent approach, taking into consideration, vulnerable groups ... and should be based on and guided by the best available science ... with a view to integrating adaptation into relevant socioeconomic and environmental policies and action where appropriate.¹⁰³

It is significant to unpack this provision by bringing out the relevant terms that support gender and climate justice propositions. The terms “gender-responsive,” “participatory,” and “consideration” for

¹⁰¹ See Amartya Sen, *Gender Inequality and Theories of Justice*, in *WOMEN, CULTURE, AND DEVELOPMENT: A STUDY OF HUMAN CAPABILITIES* (Martha C. Nussbaum & Jonathan Glover eds., 1995); Martha C. Nussbaum, *WOMEN AND HUMAN DEVELOPMENT: THE CAPABILITIES APPROACH* (2001).

¹⁰² See Ikpe et al., *supra* note 31; Onah et al., *supra* note 31.

¹⁰³ The Paris Agreement, *supra* note 1, at art. 7(5).

“vulnerable groups” have elements of gender-justice considerations. The phrase “integrating adaptation into relevant socioeconomic and environmental policies and action where appropriate” suggests that a more binding approach through policies and decisive action is recommended at the country-level.

The term participatory approach presupposes that at all levels of decision-making, more women need to participate in climate change policy-making, negotiations at the regional, national, and international levels, and training in the manufacture of energy-efficient tools and equipment. Several scholars have investigated the direct impacts of women’s representation in decision-making bodies on environmental outcomes¹⁰⁴ and if their participation would lead to better climate policy.¹⁰⁵ A World Health Organization study presented findings that suggested that women would act differently from men when making decisions about climate change problems and solutions.¹⁰⁶

However, while it is necessary to have gender balance at all levels of climate change decision making, it does not automatically translate to the fulfilment of a gender-responsive action. For example, women make up 64 percent of the lawmakers in Rwanda,¹⁰⁷ 50 percent of the Cabinet, and half of the Supreme Court judges.¹⁰⁸ The country also ranks ninth on the World Economic Forum’s 2020 Global Gender Gap Index, the highest in Africa.¹⁰⁹ Gender equality is constantly promoted in Rwanda and has transcended the realm of politics into the business sector; however, Donatille Mukabalisa, the Rwandan parliamentarian speaker, admits that women still live in a patriarchal system.¹¹⁰

¹⁰⁴ Christina Ergas & Richard York, *Women’s Status and Carbon Dioxide Emissions: A Quantitative Cross-National Analysis*, 41 SOC. SCI. RSCH. 965 (2012).

¹⁰⁵ Gotelind Alber & Ulrike Roehr, *Climate Protection: What’s Gender Got To Do With It?*, 70/71 WOMEN & ENV’TS 17 (2006).

¹⁰⁶ WORLD HEALTH ORGANIZATION, *Gender, Climate Change and Health*, 19–20 (2008).

¹⁰⁷ UN WOMEN, *Revisiting Rwanda Five Years After Record-Breaking Parliamentary Elections* (Aug. 13, 2018), <https://www.unwomen.org/en/news/stories/2018/8/feature-rwanda-women-in-parliament> [<https://perma.cc/SPK3-WA9B>].

¹⁰⁸ Antonio Cascais, *Rwanda – Real Equality or Gender-Washing?*, DW (Mar. 7, 2019), <https://www.dw.com/en/rwanda-real-equality-or-gender-washing/a-47804771> [<https://perma.cc/3L29-52GJ>].

¹⁰⁹ WORLD ECON. F., *Mind the 100 Year Gap*, <https://www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality#top-10> [<https://perma.cc/KM8V-UPLY>] (last visited Jan. 13, 2021).

¹¹⁰ Cascais, *supra* note 108.

A look at Rwanda's National Environment and Climate Change Policy reveals that the policy expressly provides for and encourages "effective involvement of women and youth in environmental management and climate change intervention decision-making."¹¹¹ It also provides for the establishment of mechanisms to develop and promote green technologies in all sectors using strategies that increase human capacity, particularly among women and youth.¹¹² This provision is in line with Article 11(2) of the Paris Agreement that provides for gender-responsive capacity building that should be country-driven, based on and responsive to national needs, in particular developing country parties at the national, subnational, and local levels.¹¹³

Rwanda has also designed a detailed implementation plan for the Nationally Determined Contributions.¹¹⁴ This plan targets for the installation of both solar and hydro mini-grids to serve rural communities for a total installed capacity of 120 MWp by 2030, including the possibility of storing energy to increase the efficiency of use.¹¹⁵ It places mini-grids as a high priority to reduce pollutants from the indoor combustion of fossil fuel for lighting.¹¹⁶ The plan also intends to provide renewable biomass to reduce deforestation from firewood collection and the consumption of non-renewable biomass.¹¹⁷ It also provides for community-based Disaster Risk-Reduction (DRR) programs to serve the poorest sections of the society—mostly women—and to improve women's involvement in community level activities.¹¹⁸ All of these activities still encounter barriers such as finance in the case of renewable biomass affordability for poor households¹¹⁹ and communication challenges in the case of early warning for climate disasters.¹²⁰

In terms of implementation efforts, Rwanda-based social benefit company Inyenyeri received an 8 million euro debt facility from UK

¹¹¹ RWANDA MINISTRY OF ENV'T., NATIONAL ENVIRONMENT AND CLIMATE CHANGE POLICY 25 (2019).

¹¹² *Id.* at 27.

¹¹³ The Paris Agreement, *supra* note 1, at art. 11(2).

¹¹⁴ AXEL MICHAELOWA, DETAILED IMPLEMENTATION PLAN FOR THE NATIONALLY DETERMINED CONTRIBUTIONS (NDCS) OF RWANDA (2017) [hereinafter Rwanda Implementation Plan].

¹¹⁵ *Id.* at 29–30.

¹¹⁶ *Id.*

¹¹⁷ *Id.* at 30, 37.

¹¹⁸ *Id.* at 74–76.

¹¹⁹ Pamela Jagger & Ipsita Das, *Implementation and Scale-up of a Biomass Pellet and Improved Cookstove Enterprise in Rwanda*, 46 ENERGY FOR SUSTAINABLE DEV. 32, 33 (2018).

¹²⁰ Lamek Nahayoo et al., *Early Alert and Community Involvement: Approach for Disaster Risk Reduction in Rwanda*, 86 NAT. HAZARDS 505, 512 (2017).

climate investor Althelia Climate Fund and the Dutch development bank FMO, in coordination with the World Bank, to scale up and provide 150 thousand households with clean-burning gasifier stoves and pellets.¹²¹ It is no surprise that implementation of the clean cookstoves mechanism has not been successful so far as some of the primary users—Rwandan women—have had to discontinue using the cookstoves because the supply of fuel pellets they were assigned to receive ran out before the month ended.¹²² As these women could only buy in bulk monthly, they would only be able to purchase additional pellets at retail prices, which was more expensive than bulk buying. Interestingly, Inyenyeri imports these stoves from China, and they were designed in the Netherlands.¹²³ There is no data of training locals, particularly women, to design and manufacture these cookstoves to reduce importation and truly empower women. Ironically, the only training that has been done is on the usage of these cookstoves.¹²⁴ Since 2011, Rwanda has invested resources in ensuring gender-sensitive awareness and education materials through its National Strategy for Climate Change and Low Carbon Initiatives¹²⁵ and not less than 540 women were reportedly trained on climate change adaptation and the implication of climate change impact on gender.¹²⁶

In terms of access to land by Rwandan women, Article 4 of LAW N° 43/2013 OF 16/06/2013 governing land in Rwanda expressly prohibits all forms of discrimination, such as that based on sex or origin, concerning access to land and the enjoyment of real rights.¹²⁷ Article 10 also provides for individual land through custom or written law and offers equal protection to rights over land.¹²⁸ As far as the laws go, Rwandan land tenure laws seemingly offer an appearance of gender-responsiveness. However, in practicality, the minimum requirement for registration of land is one hectare,¹²⁹ and most women do not have up to one hectare as larger

¹²¹ GLOB. ALL. FOR CLEAN COOKSTOVES, 2017 PROGRESS REPORT 10 (2017).

¹²² Ryan Seguin et al., *Barriers and Facilitators to Adoption and Use of Fuel Pellets and Improved Cookstoves in Urban Rwanda*, 13(10) PLOS ONE 1, 8–10 (2018).

¹²³ Jagger & Das, *supra* note 119, at 35.

¹²⁴ *Id.* at 38.

¹²⁵ Godwell Nhamo, *Addressing Women in Climate Change Policies: A Focus on Selected East and Southern African Countries*, 28 AGENDA 156, 162–63 (2014).

¹²⁶ See Rose Mukankomeje, Director General, Rwanda Environment Management Agency, Address in Doha: Rwanda Success Story in Climate Change (Dec. 2012).

¹²⁷ Governing Land Law in Rwanda, Article 4, *Igazeti y Leta ya Republika y'u Journal Officiel de la Republique Rwandaise*, June 16, 2013.

¹²⁸ *Id.*

¹²⁹ *Id.* art. 30.

portions go to the male successors.¹³⁰ Women may need to compete with male members to control consolidated land, but as Rwanda's societal structure still encourages patriarchy, it is an almost impossible feat.¹³¹ Rwandan women who are married are more protected under the law as the land registry recognizes marriages and not cohabitation.¹³² The implication is that women who cannot afford to marry would have a very small chance of having the backing of the law in a land dispute.

South Africa designed a National Strategy towards Gender Mainstreaming in the Environment Sector for the 2016–2021 period in line with South Africa's commitment to the Paris Agreement on Climate Change.¹³³ The Strategy had the key objective of entrenching gender mainstreaming values and gender equality within the running of its environmental programs.¹³⁴ South Africa submitted a report to the UNFCCC in May 2019 containing information on the integration of gender considerations in adaptation, mitigation, capacity building Action for Climate Empowerment, technology and finance policies, plans, and actions.¹³⁵ Unfortunately, this report does not contain any information regarding the implementation of these programs and the positive benefit to South African women.¹³⁶ Most of the programs contained on the Ministry's website were initiated in the early 2000s.¹³⁷

South Africa boasts the highest proportion of women in Parliament, making up 46 percent of the Parliament and 50 percent in the Cabinet. This means that in the Cabinet, there are as many female MPs as males. A review of South Africa's environmental policies between 2015 and 2019 reveals that the Climate Change bill is yet to be passed as of 2018 and contains no gender-responsive provision in Chapters 3, 4, and 5, which cover climate change responses, adaptation, and removal of

¹³⁰ ELISABETTA CANGELOSI & SABINE PALLAS, SECURING WOMEN'S LAND RIGHTS: LEARNING FROM SUCCESSFUL EXPERIENCES IN RWANDA AND BURUNDI 15, 19 (David Wilson ed. 2014).

¹³¹ *Id.*

¹³² *Id.*

¹³³ DEP'T. OF ENV'T AFFS., STRATEGY TOWARD GENDER MAINSTREAMING IN THE ENVIRONMENT SECTOR 2016–2021 (2016).

¹³⁴ *Id.* at 2.

¹³⁵ U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, SUBMISSION BY SOUTH AFRICA ON GENDER AND CLIMATE CHANGE: PRIORITY AREA ON MONITORING AND REPORTING UNDER GENDER ACTION PLAN (2019).

¹³⁶ *Id.*

¹³⁷ See, e.g., DEP'T FOR ENV'T AFFRS., *Working for Forest* <https://www.environment.gov.za/projectsprogrammes/workingforforest> [<https://perma.cc/ET5F-3Z4Z>] (last visited Feb. 3, 2021).

GHGs.¹³⁸ A small study conducted in Lwandle, South Africa uncovers the existing exclusion of women in energy decisions, particularly renewable energy.¹³⁹ Solar water heaters are one of the energy improvisations the South African government uses to fight climate change and are very beneficial; however, women are not consulted before installation, neither are they trained to manufacture or utilize them.¹⁴⁰ The finding in the study noted that when the solar water heaters were faulty, women continued to use paraffin and stoves for their energy uses.¹⁴¹ This is indicative of communication gaps between the community and the government, rendering these initial adaptation efforts unsustainable.

Mali's climate change mitigation and adaptation strategies are contained in its National Action Plan for Climate Change Adaptation. This plan, created in 2007, is very robust in its reference to women, highlighting the vulnerability of women, proposing to provide women with basic training, equipment, land, agricultural credits, and trade opportunities, and strengthening the economic capacities of women.¹⁴² The government also proposed the climate-smart agriculture approach as a solution to transform and reorient agricultural systems to support food security in the face of climate change.¹⁴³ It is unclear whether the techniques adopted by the government of Mali have benefitted women specifically. Mali also adopted a law in 2015 promoting gender equality.¹⁴⁴ In terms of the implementation of climate change mitigation and adaptation objectives, the Mali Agency for Domestic Energy and Rural Electrification (AMADER) is supported by the World Bank to mainstream gender issues into its projects and create a "gender energy action plan" that strengthens the gender desk, mainstreams gender into the monitoring and evaluation of AMADER projects, and provides training at the community level.¹⁴⁵ In 2017, Mali proposed a law known as the Agricultural Land Act of 2017,

¹³⁸ *Government Gazette* 41689, GN 580, 8 June 2018.

¹³⁹ Khayaat Fakier, *Women and Renewable Energy in a South African Community: Exploring Energy Poverty and Environmental Racism*, 19 *J. OF INT'L WOMEN'S STUD.* 165, 166, 174 (2018).

¹⁴⁰ *Id.* at 166–67.

¹⁴¹ *Id.* at 173.

¹⁴² Ministry of Equipment and Transport, National Adaptation Action Program to Climate Change (July 2007) (Mali).

¹⁴³ *Id.*

¹⁴⁴ Instituting Measures to Promote Gender in Access to Nominative and Elective Positions, LAW NO. 2015-052 (Dec. 18, 2015) (Mali).

¹⁴⁵ *Renewable Energy in Africa: Mali Country Profile*, AFR. DEV. BANK GROUP (2015), https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Profil_ER_Mal_Web_light.pdf [<https://perma.cc/3BGM-FG9C>].

which provides for 15 percent of lands to be allocated to women and young people to improve women's landholding rights.¹⁴⁶ This raises the question, have all these measures been implemented so far?

According to the World Bank, women constitute 10.33 percent on average of Mali's Parliament with a slight decrease to 8.8 percent in 2015 and a slight rise to 9.5 percent in 2019.¹⁴⁷ In terms of gender equity, this percentage is dismal. At the Parliament level, there is little or no information linking efforts of female parliamentarians and gender-responsive mitigation and adaptation policies. At the grassroots level, however, women have become central to efforts to adapt to climate change. A rural woman, Samake, has been measuring rainfall for fifteen years under an agro-meteorological aid program run from the capital, Bamako.¹⁴⁸ Samake is among the 10,000 rural Malians, half of them women, which were trained by the government to aid adaptation in the agricultural sector.¹⁴⁹ The data gathered from the trained farmers are processed by specialists to make forecasts for the whole country.¹⁵⁰

The regulatory framework governing the Nigerian energy sector is scarcely gender-responsive, as it does not consider the separated sociocultural experiences, needs, and priorities of women and men to overcome gender biases and integrate actions to promote gender equality and women's empowerment.¹⁵¹ Nigeria's National Renewable Energy and Energy Efficiency Policy 2015 refers to women twice in the entire document.¹⁵² The first reference states that the active participation of NGOs, civil societies, and "women" groups are necessary for the successful implementation of the policy, and the second includes as a strategy the establishment of micro-credit facilities for women groups for the operation of commercial solar energy facilities in remote and off-grid

¹⁴⁶ Agriculture Land Law, No. 001 (April 2017) (Mali).

¹⁴⁷ *Proportion of seats held by women in national parliaments (%) – Mali*, THE WORLD BANK <https://data.worldbank.org/indicator/SG.GEN.PARL.ZS?locations=ML> [<https://perma.cc/AP9G-PQWT>] (last visited Oct. 1, 2020) [hereinafter *Monthly Ranking of Women in National Parliaments*].

¹⁴⁸ Soumaila T. Diarra, *In Rural Mali, Women's Climate Work Brings Political Prowess*, REUTERS (Aug. 27, 2015), <https://www.reuters.com/article/mali-climatechange-women/in-rural-mali-womens-climate-work-brings-political-prowess-idUSL5N1112Y020150826> [<https://perma.cc/PW5H-CZXA>].

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

¹⁵¹ MARIA PREBBLE & ANA ROJAS, *THE ENABLING POWER OF ENERGY IN PROMOTING GENDER EQUALITY: GENDER IN THE SEFORALL COUNTRY ACTION PROCESS DOCUMENTS 9–10* (2017).

¹⁵² FEDERAL MINISTRY OF POWER, NATIONAL RENEWABLE ENERGY AND ENERGY EFFICIENCY POLICY (2015) (Nigeria).

areas.¹⁵³ It is important to note that this does not refer to women manufacturing these technologies, but rather to commercially distributing them. The paper does not condemn this in its entirety but suggests that the capacity building measures for climate change mitigation and adaptation, which the Paris Agreement recommended for women, cannot be achieved in this fashion.

In 2016, Nigeria launched Gender Policy in Agriculture in line with goals 1 (No Poverty), 2 (Zero Hunger), and 5 (Gender Equality) of the 2030 Agenda for Sustainable Development. Among other objectives, the policy seeks to promote and ensure the adoption of gender-sensitive and responsive approaches in agriculture plans and programs so that men and women have access to and control of productive resources and facilities to bridge gender gaps.¹⁵⁴ The policy recognizes that many Nigerian women have limited access to land, do not engage with agricultural training due to the gender parity in access to training, and are not equipped with female-friendly agricultural machinery.¹⁵⁵ The implementation structure contained in the policy is laudable in the sense that it proffers gender-sensitive laws, gender-responsive planning, budgeting, monitoring, and evaluation in addition to gender-disaggregated data in agricultural surveys, JSR reports, and resource allocations to gender interventions. Nigeria has also designed the Agriculture Promotion Policy (2016-20), which specifically highlighted that implementation of policies does not do enough to ensure the inclusion of women in agriculture and urged an amendment for the current and outdated Land Use Act.¹⁵⁶

Currently, the Land Use Act has not been amended, nor have there been any gender laws passed between 2015 and 2020. This is unsurprising as Nigerian women occupy a dismal 3.6 percent and 7.3 percent in both the lower and upper chambers as of 2019.¹⁵⁷ The top-down approach for implementing climate change mitigation and adaptation objectives given the statistics above proves a Herculean feat. Nigeria has also failed in its implementation efforts to harness the opportunities that the international

¹⁵³ *Id.*

¹⁵⁴ FEDERAL MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT, GENDER POLICY IN AGRICULTURE (2016) (Nigeria).

¹⁵⁵ *Id.*

¹⁵⁶ FEDERAL MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT, THE AGRICULTURE PROMOTION POLICY (2020) (Nigeria).

¹⁵⁷ IPU Parline, *Monthly Ranking of Women in National Parliaments*, <https://data.ipu.org/women-ranking?month=8&year=2020> [<https://perma.cc/RYQ8-ALK2>] (last visited Feb. 3, 2021).

community has provided through ECOWAS, which is the regional body for West African countries. ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) received a grant of \$1 million USD to advance women's role as producers and suppliers of energy services in West Africa.¹⁵⁸ There is no information on this feasibility study that was carried out, how many Nigerian women benefited from this, and if it incentivized more female participation in the energy sector since its flag-off.

A small number of Nigerian women are, however, changing the narrative in the energy sector. Smarter Grid International CEO Heather Ono, in collaboration with other international bodies, has developed renewable off-grid electricity to address the challenges of poor electricity supply especially in the rural areas at significantly lower rates.¹⁵⁹ Creeds Energy, managed by Hannah Kabir, has successfully installed 250 kilowatts (KW) of renewable energy solutions that have positively affected over 2,000 lives.¹⁶⁰ Ify Malo is another female entrepreneur and CEO of the Clean Tech Hub and the Energy Innovation Centre with the core mission of driving sustainable development across Africa through innovation in clean technologies and their application and advising on energy access.¹⁶¹ Ironically, the twenty-three power generation companies cannot boast of a female CEO, only one female CEO is accounted for out of eleven that represent power distribution companies.¹⁶²

¹⁵⁸ ECOWGEN, *ECREEE Receives US\$ 1 Million Grant to Promote Women in Energy* (Mar. 8, 2017), <http://ecowgen.ecreee.org/index.php/ecreee-receives-us-1-million-grant-to-promote-women-in-energy/> [<https://perma.cc/J2HY-UEC7>].

¹⁵⁹ Victoria Onehi and Simon Echewofun Sunday, *How Women Rose in Nigeria's Renewable Energy Sector, Quenching Darkness*, SUN CONNECT NEWS (Oct. 1, 2019), <https://www.sun-connect-news.org/de/articles/business/details/how-women-rose-in-nigerias-renewable-energy-sector-quenching-darkness/> [<https://perma.cc/8B8A-T28B>].

¹⁶⁰ CREEDS ENERGY, *Our Story*, <http://www.creedsenergy.com/en/> [<https://perma.cc/FF5F-ARRS>] (last visited Feb. 3, 2021).

¹⁶¹ Clean Tech. Hub, *History of Clean Technology Hub* (last visited Feb. 3, 2021), <https://cleantechnologyhub.com/about-us/> [<https://perma.cc/T4K7-4WVE>].

¹⁶² See Jagger & Das, *supra* note 119.

IV. GENDER AND CLIMATE JUSTICE IN SUB-SAHARAN AFRICA POST-2015

	NIGERIA	MALI	SOUTH AFRICA	RWANDA
Decision Making (Climate Change Mitigation)	Minimal to non-existent at federal, state, and municipal levels. ¹⁶³ No information on climate change decision making.	Limited studies in three districts indicate that rural women are involved in decision making at the municipal level. ¹⁶⁴ Little information on climate change decision making.	A lower proportion of women to men in parliamentary and managerial positions. ¹⁶⁵ Lacking information on climate change decision making.	A higher percentage of women as lower house representatives and judges. ¹⁶⁶ A very low percentage of women in executive positions. ¹⁶⁷
Access to Land/ Agricultural Credits	Subject to cultural dispositions. Very few communities allow women rights to land. ¹⁶⁸ The	Many female farmers in Mali lack access to land. ¹⁶⁹ The government enacted new land tenure law to allocate 15 percent	Many female farmers lack access to land and credit. ¹⁷¹ The Communal Land Rights Act 2004 that entitles women to equal land tenure is not	There is an enacted law prohibiting discrimination to land access; however, conditions for land ownership in the law are

¹⁶³ NATIONAL BUREAU OF STATISTICS, STATICAL REPORT ON WOMEN AND MEN IN NIGERIA (2018) (Nigeria).

¹⁶⁴ Soumaila Diarra, *How Mali's women are central to adapting to climate change*, WORLD ECONOMIC FORUM (Sep. 1, 2015), <https://www.weforum.org/agenda/2015/09/how-malis-women-are-central-to-adpating-to-climate-change/> [<https://perma.cc/U4V8-VQYD>].

¹⁶⁵ *Sustainable Development Goals Indicator Baseline Report 2017 South Africa*, STATISTICS S. AFR. (2017), http://www.statssa.gov.za/MDG/SDG_Baseline_Report_2017.pdf [<https://perma.cc/AVD5-V6XG>].

¹⁶⁶ *National Gender Statistics Report*, NATIONAL INSTITUTE OF STATISTICS OF RWANDA (2019), <https://www.statistics.gov.rw/publication/national-gender-statistics-report-2019> [<https://perma.cc/SD4V-UW5J>].

¹⁶⁷ *Id.*

¹⁶⁸ See generally Oluwakemi M. Adekile, *Property Rights of Women in Nigeria as Impediment to Full Realisation of Economic and Social Rights* (May 26, 2010); Sheriff Folarin & Oluwakemi Udoh, *Beijing Declaration and Women's Property Rights in Nigeria*, 10 EUROPEAN SCI. J. 239 (2014); YETUNDE ALUKO, *PATRIARCHY AND PROPERTY RIGHTS AMONG YORUBA WOMEN IN NIGERIA*, 21 FEMINIST ECON. 56 (2015).

¹⁶⁹ *Agriculture and Nutrition through a Gender Lens*, *supra* note 83.

¹⁷¹ Byelle Tibesigwa & Martine Visser, *Assessing Gender Inequality in Food Security Among Small-holder Farm Households in Urban and Rural South Africa*, 88 WORLD DEV. 33, 34–35 (2016);

	Land Use Act has not been amended to aid the equitable distribution of land.	to public land to female associations. ¹⁷⁰	implemented.	disadvantageous women. ¹⁷²
Capacity Building/ Participation	Limited training in drainage building to combat flooding. No information on training or consultation with women in the manufacture of renewable energy technologies.	UNDP training on sustainable agriculture and land management practices. ¹⁷³ There is no information of government-organized training.	The government involves women in environmental conference dialogues annually. Discussions include the progress of gender mainstreaming in the environmental sector. ¹⁷⁴ No assessment of failure or success.	The government designed a robust and gender-responsive strategic program for climate resilience, but there are no results on the failure or success. ¹⁷⁵
Political Representation (2019-2020) ¹⁷⁶	Nigerian women constitute only 3.6 percent and 7.3 percent of the House of	Malian women constitute 27.9 percent of the House of Representatives; no figures for the	South African women constitute 46.5 percent and 37.7 percent of the House of Representative and	Rwandan women constitute 61.3 percent and 38.5 percent of the House of Representatives

Zelda A. Elum et. al., *Farmer's Perception of Climate Change and Response Strategies in Three Selected Provinces of South Africa*, 16 CLIMATE RISK MGMT. 246, 254 (2016).

¹⁷⁰ Mohamed Coulibaly, *Historic New Law Secures Land for Malian Farmers*, INT'L INST. FOR SUSTAINABLE DEV. (June 15, 2017), <https://www.iisd.org/articles/historic-new-law-secures-land-malian-farmers> [https://perma.cc/9MJK-JBY9].

¹⁷² CANGELOSI & PALLAS, *supra* note 130, at 19.

¹⁷³ *Building capacity for sustainable land use and management in Rwanda*, UNITED NAT'L DEV. PROGRAM https://www.rw.undp.org/content/rwanda/en/home/operations/projects/environment_and_energy/building-capacity-for-sustainable-land-use-and-management-in-rwa.html [https://perma.cc/UM6A-QCRL] (last visited Feb. 3, 2021).

¹⁷⁴ *Submission by South Africa to the UNFCCC on Climate Change and Gender*, United Nations Framework Convention on Climate Change (2019), [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/201905091021---SUBMISSION%20BY%20SOUTH%20AFRICA%20ON%20GENDER%20AND%20CLIMATE%20CHANGE%20E1%20\(2\).pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/201905091021---SUBMISSION%20BY%20SOUTH%20AFRICA%20ON%20GENDER%20AND%20CLIMATE%20CHANGE%20E1%20(2).pdf) [https://perma.cc/3XXD-8K8D].

¹⁷⁵ See Rwanda Implementation plan, *supra* note 114.

¹⁷⁶ *Monthly Ranking of Women in National Parliaments*, *supra* note 147.

	Representatives and Senate, respectively.	Senate.	Senate, respectively.	and Senate, respectively (2018 and 2019 data).
Availability of Sex Disaggregated Data	No	No	No	No
Implementation Efforts	<ol style="list-style-type: none"> 1. No specific gender laws enacted. 2. Gender policy available. 3. No regional collaboration on capacity building for women. 	<ol style="list-style-type: none"> 1. Specific gender law enacted. 2. Gender policy available with ample reference to women. 	<ol style="list-style-type: none"> 1. No specific gender law. 2. Gender policy available. 	<ol style="list-style-type: none"> 1. Climate change laws enacted. 2. Gender policy available.

Figure 1: Snapshot of indicators used for comparative analysis

The table above represents some indicators that illustrate the inequities sub-Saharan women experience. An examination of the emerging trends occurring in the four case studies within Sub-Saharan Africa reveals mixed results in terms of gender and climate justice. In terms of legislation that empowers women to engage in more sustainable practices, particularly in the energy and agricultural sector, Rwanda and Mali have made some progress in the sense that there are gender-specific laws in the agricultural sector in addition to policies. However, these laws and policies have not filtered to the grassroots communities.

It is important to note that laws and policies are not necessarily easily implemented just because they look good on paper. Again, although policies are a positive step toward gender-responsive measures, they are insufficient when the societal structure remains the same. Some scholars have opined that despite progressive laws guaranteeing women various rights, obstacles such as the authoritarian and patriarchal structure of the

society prevent women from exercising these rights.¹⁷⁷ For this, Rohr recommends a wider transformation where progressive men are prepared to question their masculinity and work together to uncover “the embedded gender [sexuality] and power relations in climate change policy and mitigation strategies.”¹⁷⁸ In the sub-Saharan context, this would mean a reorientation and structural cultural overhaul at the grassroots level.

Evaluating the participation of sub-Saharan African women in law and policymaking reveals a huge gender injustice in terms of the number of female parliamentarians, except for Rwanda and South Africa. Even in Rwanda, the female parliamentarians can barely make a difference in an intrinsically patriarchal country. The female parliamentarians in these countries were unable to drive participation in climate change response at the community level. It is significant to note that increased female representation in Parliament is necessary to drive climate action; however, countries with intrinsic patriarchal constructs require the deconstruction and reorientation of gender values and norms.

The four case studies did not reveal considerable involvement of women in consultations relating to renewable energy technologies. In South Africa, for instance, solar panel water heaters were installed without consultation from the women on usage.¹⁷⁹ Most of the women retreated to using the paraffin stoves they had when their solar water heaters broke.¹⁸⁰ In Nigeria, the agricultural machinery women were expected to use in farming was too heavy and not built for females.¹⁸¹ This may most likely be attributed to a lack of consultation with the women to determine what equipment would be most effective for them.

Again, Article 11(2) of the Paris Agreement provides for gender-responsive measures in capacity building.¹⁸² The research reveals that some women were given training on the usage of renewable energy sources and appliances, but none were trained in the manufacture of these technologies. At any rate, the number of women that benefitted from the

¹⁷⁷ Marie Berry, *When “Bright Futures” Fade: Paradoxes of Women’s Empowerment in Rwanda*, 41 J. WOMEN IN CULTURE & SOC’Y 1, 5 (2015).

¹⁷⁸ Figueiredo & Perkins, *supra* note 5.

¹⁷⁹ SUSTAINABLE ENERGY FOR ALL, LEVERS OF CHANGE: HOW GLOBAL TRENDS IMPACT GENDER EQUALITY AND SOCIAL INCLUSION IN ACCESS TO SUSTAINABLE ENERGY (2018).

¹⁸⁰ *Id.*

¹⁸¹ Nozomi Kawarazuka, *Agricultural mechanization: how far do women farmers benefit?*, CGIAR RESEARCH PROGRAM ON ROOTS, TUBERS AND BANANAS (Mar. 6, 2018), <https://www.rtb.cgiar.org/news/agricultural-mechanization-far-women-farmers-benefit/> [<https://perma.cc/T8QW-L56Y>]; Sophia Huyer, *Closing the Gender Gap in Agriculture*, 20 GENDER, TECH. & DEV. 105, 107 (2016).

¹⁸² The Paris Agreement, *supra* note 1, at art. 11(2).

training in renewable energy usage were minimal based on the few reports highlighted within this study, making the impact unsubstantial. Regarding responses to threats to agricultural produce, there were no records of women's participation in the construction, management, and maintenance of sustainable water and irrigation systems that could be useful in reducing water shortages for agricultural production. It is significant to note that the few capacity-building programs were organized by UN agencies and some international NGOs, but there is insufficient information of training organized by state governments. Going back to the convex interpretation of Sen's capability approach, if these women are empowered with the right mental and physical training and equipped with the right tools, they will have better adaptive capacity to combat climate change impacts.

The research also found that despite the availability of laws relating to land tenure, women still encountered restrictions in accessing land. In Rwanda, for instance, at the rural level, men were twice more likely to inherit land than their female counterparts, and women who had inherited less than one hectare of land could not register it with the government to benefit from agricultural extension services and loans.¹⁸³ Instead, they felt pressured to either sell or give it to the male members of the family.¹⁸⁴ As Bayisenge, a gender studies scholar, puts it: "[T]he adoption of equitable land laws and the issuance of land titles to women do not always guarantee that women will automatically enjoy the benefits attached to the titles" as norms and values in society may constrain their effective implementation.¹⁸⁵ Put in another way, many women in sub-Saharan Africa willingly give up their rights to inherited property because their society is constructed in such a way that men are perceived as the leaders and decision-makers in the home, very often having the final say.

Again, Arora-Jonsson criticizes the vulnerability or virtuousness argument to determine and measure gender inequality. She also highlights the importance of paying attention to the power relations and inequalities reproduced in institutions at all levels and in climate change discourses generally.¹⁸⁶ If this important aspect is ignored, then women may be given

¹⁸³ CANGELOSI & PALLAS, *supra* note 130, at 22; LAND PROJECT, IMPLEMENTATION AND OUTCOMES OF RESTRICTIONS ON AGRICULTURAL LAND SUBDIVISION: AN INVESTIGATION OF ARTICLE 30 OF THE 2013 LAND LAW 6 (2016) [hereinafter *Implementation and Outcomes*].

¹⁸⁴ *Implementation and Outcomes*, *supra* note 183, at 30.

¹⁸⁵ Jeannette Bayisenge et al., *Women's Land Rights in the Context of the Land Tenure Reform in Rwanda – The Experiences of Policy Implementers*, 9 J. E. AFR. STUD. 74 (2014).

¹⁸⁶ See Arora-Jonsson, *supra* note 17, at 745.

more responsibilities without corresponding reward. For example, in Rwanda, even though women occupy the majority of Parliament, it has no bearing on the power dynamics that exist in the home, through the institution of marriage, in farm settlements, or even in government.

From the foregoing, implementation of mitigation and adaptation objectives in sub-Saharan Africa, per Articles 7(5) and 11(2), have not been very successful post-2015.¹⁸⁷ Women in sub-Saharan Africa have not fully participated in climate change response policies either due to non-representation at top government levels, as in the case of Nigeria and Mali, a disconnect from existing laws due to the overwhelming patriarchal construct of the communities, or deliberate exclusion of women from consultations on decisions to mitigate climate change impact. Further, the capacity building of women was very minimal as women were trained on how to “use” certain renewable energy technologies like cookstoves and solar water heaters and not how to manufacture them. Finally, women still struggle with access to agricultural land and decisions regarding adaptive agricultural practices.

The intention of the Paris Agreement was to foster climate justice by specifically providing for gender-responsive approaches in mitigation and adaptation strategies and actions at the country level. Unfortunately, sub-Saharan countries have been unable to achieve this through laws, policies, and programs. Again, juxtaposing the findings of this study against Caney’s human rights approach to climate justice and the ecofeminism stance that asserts that there can be no climate justice without gender justice, the findings of this study suggest that with the current gender and climate change framework within the sub-Saharan region, climate and gender injustice still prevail in sub-Saharan Africa post-2015.

V. RECOMMENDATION AND CONCLUSION

Gender-responsive mitigation and adaptation actions must principally tackle the power inequalities that pervade many sub-Saharan countries. Patriarchy as an embodiment of normative values and judgment dictates the division of labor, privileges, and opportunities based on biological differences that favor men over women. Power inequalities promoted by patriarchy affect the ability of women to mitigate and adapt to climate change impacts. Regarding climate change efforts, a bottom-up approach must be adopted to identify the inherent power inequalities to

¹⁸⁷ The Paris Agreement, *supra* note 1, at art. 7(5), 11(2).

address them. There is a need for urgent reorientation and deconstruction of patriarchy in addition to creating awareness of the exacerbated climate change impacts on women. Policies and laws must be fashioned in such a way that they encapsulate the realities of the people from the grassroots communities to urban settlements. These laws and policies should not be imported as they may not fit in with the complex and diverse realities of local people. Implementers at the local level must continually sensitize communities to the existing laws and policies that protect their rights. They must also be trained to demystify complex wordings of law and policy to enable increased entrenchment of policy implementation. Communication between the decision-makers at the national level and rural women must be maintained for sustained and effective implementation of climate change mitigation and adaptation policies and programs.

Women are pivotal in mitigating and adapting to climate change. Although vulnerable, this does not limit their capacity and capability to fight climate change. Evaluation of female vulnerability should transcend direct and physical impacts of climate change to include acknowledgment of the power inequalities that exacerbate the burden women face in adapting to climate change impacts. Women ought to benefit from training that improves their capabilities, such as the manufacturing of renewable energy technologies and not just usage. Women must play an active role in decision-making even at the national level where they can use their position to advance the objectives of the Paris Agreement. In Europe, female parliamentarians have achieved significant progress in climate policy and sub-Saharan women can equally influence the implementation of climate policy when power inequalities between genders are addressed using both top-down and bottom-up measures. One drawback, however, with gender mainstreaming research within sub-Saharan Africa is the limited statistical information on female participation in renewable energy uptake and other mitigation and adaptation efforts. This paper encourages further research that conducts interviews to provide sex-disaggregated data on climate change mitigation and adaptation implementation efforts.