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Gender and Climate Change: Challenges and Opportunities¹

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Abstract

Women are more vulnerable than men to climate change. According to the literature, this vulnerability is the result of pre-existing gender inequalities, social marginalization, less access to education and knowledge, poverty, insecure land rights, heavy reliance on agriculture and lack of mobility. This paper focuses on rural women's vulnerability to climate change, through three case studies, and also on the empowerment and the involvement of them in the policy-making processes in order to combat the climate crisis. Women should participate and contribute with their knowledge and their life experience, which is a result of particular strengths, perspectives and priorities. The empowerment of these women is vital for successfully combating the impacts of climate change and for the mitigation and adaptation efforts to thrive.

Keywords: Climate change; gender equality; women's vulnerability; climate vulnerability; eco feminism

Introduction

Existing literature shows that climate change is a serious threat to humanity. Nonetheless, this threat is gendered disproportionately and very few studies have dealt with women's vulnerability due to the changing climate and the factors responsible for this vulnerability. Women experience and/or respond to climate change differently than men, according to the Nigerian Environmental Study Team (2011), are the ones most severely affected; however, this vulnerability is not innate. In many cases, social customs and discriminatory legal institutions exacerbate women's vulnerability by increasing exposure and reducing coping capacity.

The aim of this paper is to demonstrate, through three case studies, women's vulnerability to climate change. Within the context of this study, women's vulnerability finds expression in the way patriarchy has shaped societal behaviours regarding gender relations (Gaard, 2015). In order to support this argument, the paper adopts the eco feminist theory as a framework so as to further explain how patriarchy impacts on women's lives. This theory emphasizes on the fact that both women and nature are treated with disadvantage by patriarchal society (Holy et al., 2021). Besides, the term itself indicates a connection between the degradation of nature and the oppression and subordination of women (Mellor, 2018).

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The first section of this paper explores the ways in which women's vulnerability to climate change is aggravated by patriarchy. The second section examines three case studies (in the Arctic, in the South Asia and the sub-Saharan region) so as to prove the above argument, and lastly the third section concludes with an underexplored solution to tackle climate change, which involves more women in developing and enhancing innovation.

Women's vulnerability to climate change

Women's vulnerability due to climate-related issues (sensitivity and exposure to environmental threats and the ability to respond to environmental crises) finds expression in the patriarchal structured social behaviours regarding the division of roles based on gender (Onwutuebe, 2019). This paper argues that power differentials and gender disparities are based on patriarchy, which increases this gender imbalance against women. Building on these insights, women's vulnerability to climate change does not only reflect pre-existing gender discrimination, it is also being amplified by it. Thus, women's marginalization is reinforced by the adversely changing climate, which acts more as a threat multiplier, than the cause of the marginalisation itself.

According to Appadorai (2006), male supremacy is strengthened by patriarchy, since it does not acknowledge any form of equality among women and men, and as a result, women are thought to be made in order to be submissive to male supremacy. Therefore, due to patriarchal beliefs, which are transmitted and sustained through culture and religion, violence against women becomes imperceptible (Ogbuagu, 1997). This kind of violence, direct and indirect, exposes women to more dangers and minimises their adaptive capacity to the changing climate. Consequently, women are more vulnerable to climate change, due to earlier deprivations and exclusions because of the patriarchy.

As a consequence, countries which depend heavily on agriculture will have the most adverse impacts of climate change, as they rely dramatically on climatic conditions in order to survive and make a living. Impoverished populations face greater risks, as they live in more environmentally exposed locations (such as a flood plain or a degraded hill slope) and own fewer adapting resources in order to recover from disasters (Mubila, Nabalamba & Alexander, 2011). A large percentage of women in those countries are poor farmers who depend highly on rain-fed agriculture. This makes them more vulnerable to climate change and implies a higher level of livelihood risks and exposure to climate-related disasters (Tanny & Rahman, 2016). Communities dependent on agriculture have no guarantee of the right amount of rainfall and/or sunshine in the appropriate period, and as a result, climate alterations could have devastating effects on the crops (Tyndall, 2008). Hence, these challenges might

add more difficulties to the already vulnerable and marginalised groups, such as women, like reducing the availability of land and water (Fasona et al., 2015). Women's low adaptive capacities, on account of the unequal distribution of power, along with their dependence on men, undermine the livelihood of female farmers and increase their insecurity. Men possess higher adaptive capability to face the negative effects of climate change due to patriarchal privileges. In other words, men enjoy greater levels of flexibility than women, considering their capacity to alter their occupation or even migrate, in order to cope with the aggravating consequences of the changing climate. This is mainly on account of the fact that women and men are unequally equipped to adapt in hostile conditions (Meza, 2010). Such inequalities include lack of land ownership, reduced water and food access and increased disaster exposure.

A serious cause of women's inability to adapt in such conditions is land deprivation. The traditional discrimination against women's land ownership, according to Ajala (2017), in most rural areas deprives women of the prospect to effectively engage with agriculture and cope with the impacts of climate change. Across the developing world, men own land overwhelmingly. Moreover, land grabbing (lands which belong to women whose husbands have died and are taken away from them by force), is a major issue in several communities (Meza, 2020). Communities in which women are denied the opportunity, privilege and right to take part in every public or economic activity like the men, or are deprived of the right to possess land which legally belonged to their late husbands, are tackling with much greater risk in facing the growing threats of climate change. This lack of autonomy places women at disadvantage and increases their vulnerability. In addition to that, women are also charged with the responsibility to secure food, water and fuel for cooking, prepare the meals, nurture the children and work on the farm in order to provide food. As a consequence, women are confronted with greater challenges than men, and are extremely reliant on the climatic conditions in order to secure their survival, as a climate shock may disrupt income flows, food cultivation, changes to water supplies or crop distribution (UN Women Watch, 2009).

Building on these insights, female headed households are, commonly, more impoverished and food insecure, more probable to have a bigger number of non-working dependents, as well as more likely to face greater limitations in matter of mobility and earnings, since women are responsible for both performing domestic duties and acting as main breadwinners, as claimed by Flato et al. (2017). Patriarchal social and legal institutions, discriminatory practices and violence against women exacerbate gendered disparities, amplify domestic burdens, undermine women's health and well-being and in many cases jeopardize their life. This is especially prevalent in refugee camps, conflict

zones or other insecure spaces, or when women are forced to move farther in order to collect water or fuel-wood and so the risk of a sexual assault is increased (Brody, Demetriades, & Esplen, 2008).

Case Studies

The aim of this chapter is to demonstrate the argument that women belong to a marginalised group and are disproportionately affected by climate change due to historical inequalities and their dependence on resources and sectors which will experience intense shifts and acute consequences. The case studies which will be analysed are the indigenous women of the Arctic, the rural women in South Asia, and most notably India and, lastly, the sub-Saharan women of Africa.

To begin with, since the Arctic is warming up at twice the global pace, indigenous women are severely impacted and extremely vulnerable to climate change impacts (Cameron, 2011; Arctic Council, 2016). This marginalized group is seriously affected by the accelerating and unequivocal impacts of the changing climate. Despite the fact that women's rights are officially codified under the UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW, 1979), and indigenous people's rights are recognised in the UN Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007), little focus has been given to the rights of the indigenous women in particular. Thus, their rights are usually neglected at both the local and international level, they experience deepened discriminatory and exclusionary practices and face systemic violation of their rights. The Inuit, in particular, are being severely tested, as their nature-based way of life is changed, and the community's identity might as well be destroyed (Miranda, 2013). Indigenous women are especially vulnerable due to limited access in education and information, geography, increased exposure, land ownership and rights, underrepresentation in (high-level) political positions and patriarchal structures, among others (Prior and Heinämäki, 2017).

In South Asia, on the other hand, women's vulnerability is a product of interacting and diverse social processes. In India, in particular, but also in most cases, women in rural areas are responsible for household work, harvesting and carrying fodder cattle and farming. Consequently, extreme climatic events exacerbate women's workload, especially in fuel wood collection and water fetching, affecting them socially, physically and economically (Waris & Antahal, 2014). More specifically, India's arid regions are prone to chronic water shortages, thus climate change decreases the clean water's availability and so women and young girls need to walk longer, rough and unsafe distances, in search of clean and sufficient water (Mitchell et al., 2007). This also impacts the rise of women's and girls' illiteracy, as they are forced to miss school, for example in rural Rajasthan and Gujrat (Kookana et al., 2016). Additionally, climate change indirectly affects women's health, as it disrupts their natural

systems, causes infectious diseases (as a result of the degradation of water supplies) and malnutrition (WHO, 2010). All in all, women who live in arid and rural regions of South Asia are disproportionately more at risk because of the climate change due to poverty (limited access to resources), the fact that they constitute 70% of the informal workforce (Ghosh, 2015) and the fact that they rely heavily on meagre natural resources not only for their livelihood but also as a substance income.

Lastly, women living in sub-Saharan Africa face the most challenging threats to their sustainable development due to climate change, owing to their high dependence on environment-based livelihoods. According to Hellmuth et al. (2007) 70% of them rely substantially on agriculture. In Africa, therefore, the population is already at much greater risk of livelihood and food insecurity. In South Africa, Kenya, Zimbabwe and Uganda women are engaged in agricultural exports, where production is characterized by seasonal, short-term and casual work (FAO, 2010). In the sub-Saharan region, also, it is estimated that women are responsible for 80% of food production (Mubila, Nabalamba & Alexander, 2011). As a consequence, their high dependence on the agricultural sector, which itself relies deeply on the climatic conditions, puts women in the most disadvantaged position. Moreover, another obstacle women need to face is land deprivation. In Africa, despite women being responsible for approximately 50 to 80% of the agricultural production, they hold title only to less than 20% of all agricultural land (FAO, 2016). Extreme climatic conditions in Africa have demonstrated these gender inequalities. For example, severe droughts between 2013 and 2019 were experienced in Sahel, the Horn of Africa and Southern Africa, and on 14th of March 2019 Cyclone Idai hit parts of Mozambique, Malawi and Zimbabwe. Women and girls carried the brunt of those events' impacts, according to the Global Gender and Climate Alliance (2016). Among those affected, they paid the biggest price. As claimed by the UN News (2019), nearly 82 000 pregnant women were left vulnerable due to lack of reproductive health services, clean water and sanitation or experiencing the risk of life threatening complications.

Women's Empowerment and Contribution to Climate Change Mitigation

An underexplored solution to tackle climate change is involving more women in developing and enhancing innovation. There are a lot of benefits of having women on board, as they are praised for their positive role in accomplishing the right societal impact (Kraus et al., 2018), and moreover being the initiators of many climate change movements, like ecofeminism (Gaard, 2015).

To begin with, the topic of gender issues in innovation has concerned the scientific community since 1975, based on a sociological analysis of whether women belong or not in science (Le Loarne-

Lemaire, 2020). This debate has strongly evolved and has grown a lot of interest nowadays. Paul-Hus et al. (2015) note that gender disparities and the gender gap persist in many areas of the society, and the scientific research makes no exception. Scholars state that many countries aim at growing women's participation in science, since they are more efficient in managing scientific research activities, while men are more efficient in conducting technology development activities (Kou et al., 2020). As Le Loarne-Lemaire (2020) states, getting more women involved in innovations contributes to an ameliorated development and diffusion of them.

Paswan and Singh (2020) support greater female participation in research. This paper argues for more female participation in climate change research, as according to literature review conducted by Le Loarne-Lemaire (2020), public policies aimed at countering climate change do not at most times succeed in developing patents which serve this cause. Therefore, owing to the fact that women mean to help others and the society first (Croson & Gneezy, 2009), rather than focusing mostly on gaining profit such as their male counterparts, it is unquestionable that more women should take on leadership positions, leading to more disruptive innovations, greater research diversity and more inclusive teams in this male-dominated context (Galia & Zenou, 2012).

This paper strongly supports that women, especially those in poor countries, suffer the most from climate change, nonetheless lack equal representation in the decision-making. As noted by Robinson and Verveer (2015), the world should not neglect the needs of its half population, nor disregard their potential and talents in innovating solutions. Women are critical factors of change, and therefore can contribute to both mitigation and adaptation efforts through creative and localized solutions. An example which proves the above statement is Grameen Shakti, a Bangladeshi renewable energy social enterprise, which since 2005 has been training women as solar technicians, aiming at empowering rural women through job creation and ensuring their involvement in the renewable energy sector. Women's lives are totally transformed by programs like this, since they provide them access to sustainable livelihoods, training, technology and financial resources. Thus, women's crucial role in contributing to solutions and serving to minimize the global threat of climate change is enhanced. On that account, women's participation in the decision-making is a strategic necessity, and moreover, they need to be included as leaders in such processes, in order to successfully combat climate change.

Conclusions and Recommendations

Women are indeed the ones who are mostly affected by natural disasters and climate change, though their vulnerability is not inherent; it is rather a result of poverty, gendered social roles and discrimination, which heighten exposure and undermine women's coping capacity. As a

consequence, women are more impoverished than men, less able to adapt to adverse climate change impacts, and moreover, less likely to take part in the policy-making process which facilitates mitigation efforts or gender-specific adaptation (Van Aelst and Holvoet, 2016).

As shown by the case studies, and according to the eco feminism theory, around the globe, discrimination against women obstruct them from participating in the political arena and in the decision-making process about climate change and, in addition, due to being marginalized, they are particularly vulnerable in times of political instability. Furthermore, gender roles limit women's mobility and impose tasks which are associated with food production. Hence, women are cultivators and the main users of land and natural resources, despite not owning the land or not controlling the allocation of the resources.

Consequently, this paper concludes with the fact that women (especially those who live in rural areas and are mostly affected by climate change) should participate in the decision-making process and contribute with their knowledge and their life experience, which is a result of particular strengths, perspectives and priorities. The empowerment of these women is vital for successfully combating the impacts of climate change and for the mitigation and adaptation efforts to thrive. Thus, this paper advocates the elimination of social, cultural and institutional barriers to women's full civic, political and legal equality with men, as well as the improvement of schooling for all youth and especially the increase in educational attainment of girls.

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