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**Gender, Climate Change and Disasters: Vulnerabilities, Responses, and Imagining a More Caring and Better World**

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\*The views expressed in this paper are those of the authors and do not necessarily represent those of the United Nations.

# Gender, Climate Change and Disasters: Vulnerabilities, Responses, and Imagining a More Caring and Better World

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## 1. Introduction

The task of a background paper, in my view, is to help groups to take stock and synthesize key insights, lessons and gaps, and indicate promising practices. It should provide signposts to illuminating ideas and linked action. In short, it should lead us to better *praxis*, or the reciprocal relationship between thinking and advancing change. This is thus the objective of this background paper: to shed light on and learn from the thinking and action in the sphere of gender, climate change and disasters, and through this prism, more fully enable sufficiently well-grounded responses leading towards a more liveable and caring world.

Climate change is the most pressing phenomenon of our times. It exposes the combustible injustices of the human practice of global capitalism, where those most affected have been least responsible for this change. The IPCC 6<sup>th</sup> Assessment Report is “unequivocal that human influence has warmed the atmosphere, ocean and land. Evidence of observed changes in climate extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and, in particular, their attribution to human influence, has strengthened since the Fifth Assessment Report” (IPCC, 2021, p. 4). We now experience longer warm and dry spells – in many instances, prolonged drought – warming oceans and the subsequent decline in marine resources, higher precipitation and increasingly ferocious, bigger, and more frequent storms, and increased vector diseases. These events have profound implications on human security because they threaten our survival as a species and as a planet. Our food, water, the air we breathe, shelters and infrastructure, as well as work, employment, and livelihoods that we daily rely on are all put at serious risk. In the last decade alone, the world has witnessed increased killer floods and forest fires, deserts clawing back at once-green spaces, unexplained zoonotic diseases and pandemics, and the decline of marine and aquatic resources that are sources of protein for local coastal and riparian communities worldwide. While we all grapple with the disruptive effects of a warming planet in different ways, the global consensus is that those least responsible for climate change are those most adversely affected by it (Global Commission on Adaptation, 2019). In a very relational sense, the drivers of accelerated industrialization and economic growth are the same drivers of disastrous climate change events, pandemics, poverty, gender inequality and overall cascading and deepening insecurity among vulnerable populations and parts of the world.

In this background paper, “gender” is referred to in an intersectional way<sup>1</sup>, acknowledging that gender is not a standalone identity but that through the workings of power, gender intersects with other social identities of difference such as class, race, ethnicity, age, ability, sexuality and geographical location (Cho et al., 2013; Sultana, 2013).

To realize the objective of this paper, I have organized the following sections as follows: (i) a brief conceptual discussion on the links between climate change, disasters and gender; (ii) the drivers of gendered vulnerabilities; (iii) key lessons learned from institutional responses to climate change (adaptation and mitigation); (iv) concluding remarks: the feminist ethics of care’ and (vi) potential pathways for action and reflection.

## 2. The interlinkages between gender and climate change: Four propositions

What is noteworthy about the climate change discourse is its silences: “gender,” historically, has been one of them: “Climate change is cast as a human crisis in which gender has no relevance” (MacGregor, 2010, p. 225; Resurrección, 2013). Until the present time, climate change scientists, researchers, and policymakers are often still at a quandary on how to make the vital connections between gender, social equity, and climate change despite voluminous reports having been devoted to these themes over the years. Climate change has been for the most part traditionally constructed as a technical phenomenon that principally warranted technical responses (Nightingale, et al., 2019; MacGregor, 2010). Climate change derives its ontology largely from environmental (climate) science epistemologies (e.g., geography, meteorology, oceanography, etc), which has caused it to be widely discussed as a scientific problem requiring technical solutions without substantially transforming political economies of exploitation and extractivism, thus driving climate change solutions based on incomplete analyses (Klein, 2012; MacGregor, 2010; Pelling, 2011). As a case in point, gender was completely absent in the UN Framework Convention on Climate Change (UNFCCC) when it was first written immediately following the UN Conference on Environment and Development in Rio de Janeiro in 1992 (Röhr, 2006; Wichterich, 2012). The science behind carbon and greenhouse gas emissions evidently sidestepped social and especially gender concerns. Climate change was initially viewed as a growing and worrying scientific and ‘natural’ phenomenon of global proportions, however with minimal attention to its economic and social aspects (Rodenberg, 2009).

As a corrective, this paper then starts by putting forward four fundamental propositions that connect gender and social equity with climate change.

**Drivers of Climate Change and Gender Inequality.** The first connection highlights that climate change is more than an external stressor: it is a result of exploitative practices towards nature and feminized and reproductive labor. The drivers of climate change, environmental degradation, and gender and social inequality are not separate but interconnected. They draw from the combined extraction of nature and the exploitation of cheap labor from poor women, colonized and racialized groups. When combined, these

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<sup>1</sup> Gender is understood as intersectional, and therefore its concerns are not limited to women and men in the binary sense; intersectionality is the way in which multiple identities that divide social groups interact and how they come to reinforce each other (e.g., gender intersects with class, race, age in specific contexts) (Cho, et al., 2013; Nightingale et al., 2019).

drivers support and accelerate neoliberal and market-driven economic growth (Shiva, 1989; Thompson & MacGregor, 2017). These ‘extractivisms’ are compulsory for high-productivity economies to remain buoyant. Scholars now contend that climate change (and Covid-19) emerged from the extractive exploitation of nature by capitalism and the creation of sacrifice zones where profit was prioritized over people and planetary well-being (Sultana, 2021, p. 448). Commodities and services require both living nature (human and non-human) to be exchanged in the market where often female labor and nature are taken less than what they cost (Barca, 2020). In political economic terms, extractivisms and appropriations of this kind manifest through “extreme privatization, financialization and concentration of capital; production geared to short-term profits; unfettered material consumption; and unprecedented levels of militarism – very often at the expense of state regulation and redistribution, reproduction, and care. These political economic relations rely on and reproduce gender inequalities, exploiting women’s labor and provision of unpaid care, and often their bodies too” (Leach et al., 2015, pp. 2-3). Women work two-thirds of the world's working hours, produce half the world's food, and earn 10% of the world's income (Gaard, 2015). In short, women and other subsistence or essential workers constitute the ‘forces of reproduction’ or ‘earthcare labor’ who through their daily work practices, take care of the conditions for human reproduction and thus, are keeping the world alive (Barca, 2020)<sup>2</sup>.

**Differentiated Outcomes.** The second connection is specifically about the differentiated outcomes of climate change, which is by far, the most widely understood. This connection can be made once the gaze scales down to ground level impacts of climate change and disasters. Climate change outcomes display a complex and dynamic interweaving of ecology, economy, and justice among developing and developed regions, stratified classes, genders, races, ethnicities, and geographical spaces (Alston & Whittenbury, 2013; Bradshaw, 2015; Dankelman, 2010; Terry, 2009). These impacts are therefore not the same for people and places. The weakest members of society, those suffering socio-cultural discrimination, suffer the worst consequences of severe weather and climate disasters. (Jerneck, 2018a; Wichterich, 2012). Poor, racialized women and men are most severely affected by climate change and natural disasters, however, their vulnerability is not innate but mediated and (re)produced by existing political economic and patriarchal institutions, forms of social discrimination and exclusions, and persistent poverty in

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<sup>2</sup> A good metaphor is the “chicken mcnugget” by Patel, R. M., Jason W. (2018, May 8). <How the chicken nugget became the true symbol of our era | Food | The Guardian.pdf>. *The Guardian*. <https://www.theguardian.com/news/2018/may/08/how-the-chicken-nugget-became-the-true-symbol-of-our-era> It is about the billion-dollar US poultry industry (Cheap Nature). 86 percent of workers, some of whom are prison workers, cut wings are in pain because of the repetitive hacking and twisting on the line (Cheap Labor). The result for workers is a 15 percent decline in income for the ten years after injury. While recovering, workers will depend on their families and support networks, including women, a factor outside the circuits of production but central to their continued participation in the workforce (Cheap Care). The food produced by this industry ends up keeping bellies full and discontent down through low prices at the checkout and drive-thru (Cheap Food). Chickens are bred in large lots that use a great deal of fuel to keep warm. This is the biggest contributor to the US poultry industry’s carbon footprint since it uses abundant propane (Cheap Energy). There is some risk in the commercial sale of these processed birds, but through franchising and subsidies, everything from easy financial and physical access to the land on which the soy feed for chickens is grown—mainly in China, Brazil, and the United States—to small business loans, that risk is mitigated through public expense for private profit (Cheap Money). Finally, persistent and frequent acts of chauvinism against categories of animal and human life such as women, the colonized, the poor, people of color, and immigrants—have made each of these six cheap things possible (Cheap Lives). The social struggles over nature, money, work, care, food, energy, and lives that attend the Capitalocene’s poultry bones amount to a case for why the most iconic symbol of the modern era isn’t the automobile or the smartphone but the Chicken McNugget.

disaster and climate change contexts. Vulnerability indicates historically and culturally specific patterns of practices, processes, and power relations that render some groups or persons more disadvantaged than others (Enarson, 1998; Gaard, 2015; Nightingale, 2009). Agricultural losses, for instance, will affect farm livelihoods which will in turn intensify care obligations and the need to make ends meet through more informal and precarious means, which poor women, girls and younger men are often expected to take up. Climate and livelihood uncertainty can also lead to greater insecurity and violence against women and children, as well as to other forms of precarity.

**Climate Change Responses and Programs.** Third, addressing climate change has created specific responses. The first response is to mitigate climate change by decreasing carbon emissions to the earth's atmosphere by reducing reliance on coal, gas, and oil (fossil fuels) for energy. As countries have industrialized over the decades, reliance on fossil fuels has dramatically increased. Big fossil fuel energy companies extract carbon-rich deposits formed from the decomposition of buried carbon-based organisms that died millions of years ago and are non-renewable. Fossil fuels supply around 80% of the industrial world's demand for energy, have become increasingly affordable, and in turn help produce cheap material such as plastic and steel, among many other essential manufacturing products we use today (ClientEarth, 2021).

In response, some of the current climate change mitigation measures harness sources of renewable energy such as solar, wind, hydropower, geothermal, bio- and agro-fuels, and biomass. A growing concern with climate change mitigation efforts that aim to transition to low carbon production through renewable energy sources is that this shift is intended primarily to re-energize growth and profitability of global capital without giving priority to social, gender and environmental justice concerns (Newell et al., 2020). For example, labor regimes may persistently be organized to profit from and exploit feminized and essential labor and ecological resources<sup>3</sup> to continue extracting surpluses for the wealthy few. This may reproduce earlier inequalities and disproportionate forms of disadvantage, exclusion, and poverty. Going green and clean does not automatically lead to gender and environmental justice.

Other climate mitigation efforts aim to enlarge carbon sinks such as reforesting deforested tracts of land in programs such as REDD+ (Reduce Emissions from Deforestation and Forest Degradation). More industrialized and fossil fuel-reliant economies have also engaged in offsetting their carbon emissions by initiating emission-reducing actions – such as massive reforestation or sponsoring the production of flood- and drought-resistant crop varieties – in developing countries, either through the Clean Development Mechanism (CDM) or in specific programs such as Climate-Smart Agriculture (CSA) (Bank et al., 2015). Climate mitigation programs are only recently incorporating gender and social equity issues as they have been traditionally understood as technical programs. In REDD+ for instance, IIED (2012) reported that implementers should not only avoid harming women and other marginalized groups, but actively seek to address their needs. Different genders, generations and ethnicities use and conserve forest resources. Knowledge about differences in the control of resources, decision-making structures, and distribution of benefits under REDD+ programs can avoid reproducing disadvantage and exclusions.

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<sup>3</sup> A frequently bypassed fact is that new gridless and fossil fuel-free energy technologies may operate on batteries that run on the extraction of lithium. Another case is hydropower where methane emissions through dam construction and operations are hidden behind the rhetoric of hydropower as a clean form of energy. Ahlers, R., Budds, J., Joshi, D., Merme, V., & Zwartveen, M. (2015). Framing hydropower as green energy: assessing drivers, risks and tensions in the Eastern Himalayas. *Earth Syst. Dynam.*, 6(1), 195-204. <https://doi.org/10.5194/esd-6-195-2015>

Adaptation, the second programmatic response to climate change, refers to the adjustments made in natural or human systems that aims to moderate harm or in some instances, exploit beneficial opportunities (IPCC, 2007). Actions range from daily decision-making by individuals, to collective action and formal adaptation policy making, and together make up the processes of adaptation to climatic uncertainty and change by societies (Burton et al., 2005). Types of adaptation have adopted technical solutions such as ecosystem-based adaptation strategies, climate-smart agriculture, and infrastructure-driven adaptation. Gender and social considerations have long been attended to by adaptation planners largely employing gender mainstreaming approaches (FAO, 2018). Success rates vary and subsequent sections in this paper will discuss lessons learned from the implementation of several programs. Adaptation programs are better configured for social inclusion than mitigation strategies in a general sense. Overall, climate change ‘lands’ in spaces where serious inequalities already exist and therefore our climate change programs – whether mitigation or adaptation – should be fundamentally attentive to the vulnerable situation of the most marginal in societies such that their situation is not worsened but instead improved and even transformed (Jerneck, 2018b).

**Whose Voices Matter?** Fourth, democratizing climate change agendas will need to address gender and social inequality. There is need for collective voices and action to realize new ways of living with each other and with non-human others – a new ‘wordling’ – that is founded on a strong and fundamental feminist ethics of care (Harcourt, 2019). Too much abuse and exploitation of bodies, of women, racialized groups and of non-human others (all kinds of earth species and ecosystems), have resulted from extraction processes to increase productivity and accelerate economic growth. Greater gender equality means enhancing equal participation and voice in decision-making for climate change responses at multiple levels. This includes building deliberative forms of democracy that can debate sustainability goals and values in inclusive ways; and assuring space for feminist collective action to bring about change that is beneficial for all and not solely for stimulating markets that enrich a privileged few (Leach et al., 2015, p. 7).

The interconnections between gender, climate change, and disaster risk lie in the differentiated and unequal nature of outcomes on people based on intersectional axes of social identities – gendered, racialized, and colonized – and the multiple and interlocking drivers that persistently render them vulnerable. The following section will discuss vulnerability more fully and the impacts of climate change and disasters that threaten both human and non-human entities.

### 3. The drivers of vulnerability and the differentiated outcomes of climate change and disasters

Contrary to current viewpoints, vulnerability is not the biophysical end-result of exposure to climate change hazards or disasters (O’Brien et al., 2007). Instead, vulnerability may involve more than just exposure to climate change stressors, hazards or disasters but could include such aspects as a weakening sense of belonging and respect, bodily violence, threatened social and cultural heritage, a history of colonization and resource appropriation, glaring inequality and unfair distribution of wealth, forcibly dispersed settlements, exhaustion, lack of access to nature-based outdoor activities, and lack of control over one’s own destiny, all of which have nothing much to do with the particular onslaughts of climate change itself. Climate change and disasters, however, inter-mix with these forms of vulnerabilities and may cascade into deeper marginalization, displacement, immiseration and webs of disadvantage (Bradshaw, 2004; O’Brien et al., 2007). Vulnerability is viewed as being driven in large part by dynamic and context-specific social, economic, political, institutional, and technological structures and processes

(Eakin & Luers, 2006; O'Brien et al., 2007; Ribot, 2011, 2013). Many of these drivers of vulnerability are not addressed by planned climate change mitigation and adaptation programs, as they aim to principally address the stressor at hand often through technical means and solutions (Gonda, 2016; Nightingale et al., 2019).

Recently, a team of gender and climate change researchers convened to document gender and social impacts of climate change and disasters across specific sectors and concluded that climate adaptation measures would have to be holistic and transformative to make any significant change (Resurrección et al., 2019). A transformative view looks beyond a programmatic approach to adaptation (or mitigation) but views it instead as an opportunity 'to reconfigure the meaning and trajectory of development (Pelling, 2011, p. 167). Table 1 below summarizes the group's findings into five categories.

Table 1. Drivers of Vulnerability and the Exacerbating Effects of Climate Change and Disasters

<p><b>A. Unequal Obligations of Care Intensify in Climate Change and Disaster Contexts</b></p> <ol style="list-style-type: none"> <li>1. Burdens of care intensify, leading to time and resource poverty and immobility (WomenWatch, 2009)</li> <li>2. Changes in hydrological regimes in wetlands burden women with water collection (Ali &amp; Grobicki, 2016)</li> <li>3. Women care for less mobile family members in disaster-prone areas (WHO, 2014)</li> <li>4. Care for malaria-stricken families (WHO, 2003) and vulnerability to malaria of pregnant women (UNDP, 2015)</li> <li>5. Women are likely to reduce their nutrition intake as caretakers (Segnestam, 2017)</li> <li>6. Increased care disables women from accessing emergency resources such as food, fuel, and public services (Alber et al., 2017; Reckien et al., 2017)</li> <li>7. Risks faced by women workers are compounded by care responsibilities and precarious labor contracts. These risks are often exacerbated when extreme events occur (Bolwig et al., 2010)</li> <li>8. Women professionals assist in disaster recovery and provide support to employees, but also must balance this with their own domestic care responsibilities (Pathak &amp; Emah, 2017)</li> <li>9. Women managers depend more on personal savings or loans from kin rather than from formal channels such as banks and financial institutions (Pathak &amp; Emah, 2017)</li> <li>10. Poor women sell their small assets and take loans from informal money lenders and their social networks to cover household costs when disasters hit their homes (de la O Campos &amp; Garner, 2012)</li> </ol> <p><b>B. Inadequate Rights and Access to Resources Weaken Adaptive Capacities</b></p> <ol style="list-style-type: none"> <li>1. Can lead to insecure conditions including gender-based violence (GBV) (UN WomenWatch, 2009)</li> <li>2. Land grab and resource conflicts constrain access to land and natural resources reducing livelihood security (Daley &amp; Pallas, 2014; Julia &amp; White, 2012; Park, 2018; Park &amp; White, 2017)</li> <li>3. Weak rights to property and housing cause insecurity especially during the post-disaster phase of reconstruction (Alber, et al., 2017)</li> </ol> <p><b>C. Flexible Employment Conditions of Women Workers and Occupational Hazards Worsened by Climate Hazards and Disasters</b></p> <ol style="list-style-type: none"> <li>1. Weaker access to cooling during heatwaves, which is worsened by their bodies' compromised ability to thermoregulate (Hoehne et al., 2018; Yang et al., 2019; Yin et al., 2018)</li> <li>2. Sanitation facilities break down, causing diseases like urinary tract infections (UTI) for women (Ahmad, 2012)</li> <li>3. Female laborers are overrepresented in manufacturing sites and are exposed to extreme heat events (ILO, 2017; Nerbass et al., 2017) such as in brick manufacturing (Sett &amp; Sahu, 2014)</li> <li>4. Insufficient toilet facilities in factories are aggravated by heat exposure leading to kidney-related diseases due to infrequent drinking of water among women workers (Venugopal et al., 2016)</li> </ol> <p><b>D. Poor and Hazardous Housing in Informal Settlements Can Increase Vulnerabilities of Home-based Workers and Stay-at-Home Residents</b></p>
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1. Increase the risk of women, children, and the elderly to flash or massive flooding (Ajibade et al., 2013)
2. Poor design and housing materials in city peripheries expose home-based workers – mostly women and elderly (Jabeen & Guy, 2015)

**E. Differences in Exploring Alternative Livelihood and Survival Resources in Disaster and Climate Change Contexts**

1. Male out-migration, leading to female-headed households (Dankelman, 2016)
2. Adaptive capacities that enable new agricultural opportunities are a function of social relations and networks that women often tap (Kawarazuka et al., 2018)

Source: Gender-Transformative Climate Change Adaptation: Advancing Social Equity (Resurrección, et al., 2019).

Table 1 tells us that climate change and disasters are experienced and embodied in differentiated ways: through intersecting class, age, geography, and racialized axes of gendered identities. They affirm that those least responsible for the onslaught of climate change and its hazards are also those most adversely affected. These findings also show that climate change and disasters exacerbate already existing contexts of inequality, poverty, and disadvantage. However, climate change programs do not address these drivers in any meaningful way and often consider “gender” as an afterthought. Meaningful ‘solutions’ would therefore have to address the socio-political and economic drivers that propel and create climate change front and center. Unfortunately, mainstream climate change programs and policy practices are usually designed based on a (positivist) framing of climate change as an external and unruly form of nature, whose ‘unruliness’ and trajectories must be predicted, managed and consequently, controlled through technical means (Taylor, 2014); MacGregor, 2010). The designs of these solutions thus end up largely technical and technocratic.

When examining the experiences of women in climate change contexts, the examples above also tell stories of their living conditions: as flexible and underpaid workers in companies mired by occupational hazards; weak access to resources and rights to social protection that curtail well-being and security; their long and growing list of caring obligations; and poor housing conditions in informal settlements. These are the conditions that define their vulnerability to climate change and disasters. These conditions relate with the taken-for-granted and normalized practices of appropriating poor, low-skilled women’s reproductive labor to support big economic and business interests that do not address their needs for social well-being and protection.

Similarly, what is also noteworthy about these accounts is how women, children and the elderly embody the precarious conditions of their environments within their bodies such as being exposed to occupational hazards that may result in kidney-related and reproductive diseases which are further worsened by dehydration from heatwaves (Ahmad, 2012; Venugopal et al., 2016). This reminds us of past efforts of feminist environmentalists and environment justice advocates who exposed the influence of environment and disasters on human health, and highlighted environmental links to illnesses such as breast cancer, asthma, reproductive disorders, and other types of cancers (Alaimo & Hekman, 2008). Every human case of disaster, climate change or Covid-19 is not far from these embodied experiences of a troubled and increasingly degraded environment. In relation, Rupa Marya and Raj Patel (2021, p. 13) locates the causal origin of disease not internally within the body as western medicine has practiced, but “in the multidimensional spaces around and beyond the individual body – in histories, ecologies, narratives, and dynamics of power . . . or in places where our lives have been circumscribed.”

Finally, the examples in Table 1 also blur any divide between ‘drivers’ of vulnerability and ‘impacts’ of climate change and disasters. Instead, we see spiraling new and old vulnerabilities intertwined with

climate outcomes rather than discrete and separate causes and impacts that scientific practice is inclined to scrutinize. This weakens the case for deploying specific technical and managerialist approaches premised on positivist epistemologies to measure impacts and then devise ways to mitigate these impacts usually through technical means. A more holistic understanding of and attendance to the political economic and social drivers of vulnerability – and their embodied manifestations – may most likely signpost ways to address the complex and intertwined challenges of climate change.

#### 4. Lessons learned from adaptation and mitigation programs from a feminist perspective

Adaptation and mitigation as institutional responses to climate change have been designed and translated into programs where enormous global and local financial and human resources have been channeled. This section will focus on climate change adaptation and mitigation contexts at the national or local levels that collectively indicate how climate interventions are being framed and realized on the ground. Planned interventions, however, constitute only a part of how people are responding to climate change. It is however important to understand some of the deficits and shortcomings in these planned interventions and how they come about.

We have come to a point in the climate change saga where we can now draw important insights and lessons from the rich laboratory of adaptation and mitigation experiments after roughly two decades of implementing them. To start with, this section will briefly present summarized versions of four case studies on climate change adaptation and mitigation and at a later portion, critically discuss the implications of these studies on gender and social equity. These cases are not, by any means, representative of all planned gender and climate change programs. They are primarily intended to highlight key issues that can account for serious past and future shortcomings, and as such, provide important insights.

**Case 1: The Climate Victim Stereotype.** Climate change adaptation projects have increasingly incorporated gender issues, aiming to advance gender equality and improve women’s adaptation to climate change. Gonda’s (2016, 2019) research on gender-sensitive climate adaptation projects in Nicaragua tells us of how project implementers attempt to emancipate rural women in villages based on reified notions of women’s subjectivities as climate change victims. Based on traditional notions of women’s roles as fetchers of water and fuelwood, projects such as rain harvesting and cookstoves mismatch dynamic and daily negotiations around responsibilities between women and men of different ages in these villages. By sticking to the narrative of the ‘climate-affected poor, rural woman’ circulating prominently in policy literature, projects could overlook the changing roles of women and men – where men also become increasingly active in reproductive work such as water and fuelwood collection. In this case, these changes are in large part due to prolonged droughts and rapid economic changes such as the decline in maize production and land fertility that assign new tasks and gendered assignments. In short, project implementers and planners, by clinging to the victim narrative, can miss opportunities and targets for more realistic and effective projects that could realistically benefit villagers. In the vignette below, Gonda (2019: 92) describes a workshop hosted by implementers for local village people:

*I observed that the workshop’s exercises were designed in such a way that the participants would confirm and conform to the female stereotype of the victim in climate change. The facilitators who were hired to conduct the event, on the basis of which they had to elaborate a report, asked the group of participants to identify what was happening in the majority of situations. The questions that were asked included whether women or men were in*

*charge of fetching water and wood; who got up earlier and who went to bed latest; or who was lacking ownership and control over the means of production, called by the facilitators “adaptation technologies.” The questions suggested that women were expected to answer that they were the ones who fetched firewood and water, that they were the ones who got up earlier as compared to men, and that they did not have control over the means of agricultural production. Very few of the answers given by participants matched the expectations of the facilitators. For example, a sixty-year old single woman from El Nancite, who has never been married, who is a mother of an adult daughter, and who lives and works alone on her ten-hectare farm, gave the following unexpected answer:*

*Facilitator (addressing all women): Who [among you] helps her husband in agricultural work?  
Doña Leonor: I am the one who works [personally] on the land.*

*At the workshop, as the debate dragged on producing other similar “unexpected” answers, and the facilitators of the workshop wanted to move on but not without reaching a consensus that would appear in their report, they started suggesting percentages. For example, they recommended that the participants agree to the fact that in 30 percent of cases, it is men who fetch water and in 70 percent of cases, it is women. They also suggested that participants agree on the fact that women sleep five to six hours per night, while men sleep seven to eight hours. This approach did not help the facilitators understand either the reasons why some situations were particular (such as the case of Doña Leonor), or the factors that are at the origin of some gendered vulnerabilities. The timid efforts to break out from the essentializing picture of women without agency (example of Doña Leonor) were stopped by the facilitators, thus purposefully or inadvertently reinforcing the stereotyped vulnerable female subject in the face of climate change, which, I argue, can ultimately legitimize household inequity.*

Source: Gonda, 2019

From Gonda’s (2019) vignette above, it appears that the implementers or facilitators of the gender-sensitive climate change adaptation project have internalized the stereotype of women-as-victims of climate change as their main entry point to gender mainstreaming. They have also internalized their role as gender experts whose main task is to ensure women’s empowerment in a technocratic sense without fully understanding the fluidity and complexity of negotiations and gender subjectivities as they play out in everyday life among people. This also draws our attention to the role of gender experts in science-led programs such as climate change adaptation where their work is in tension with scientific knowledge that prefers to deal with fixed models of behavior that are measurable, realizable, and prone to forms of social engineering (Resurrección & Elmhirst, 2021).

**Case 2. Feminist Blindspots in Climate-Smart Agriculture.** Climate-smart agriculture (CSA) is heralded as a mixed climate adaptation and mitigation approach: a win-win package of boosting sustainable agricultural productivity and incomes, reducing the greenhouse gas emissions conventionally contributed by agriculture, as well as adapting to the vagaries of climate change (FAO, 2013). As a consequence, gender experts and scholars have maintained that CSA should be gender mainstreamed since it may in the end, exclude women, who are understood to constitute roughly half to two thirds (43 to 70%) of agricultural labor globally (Beuchelt & Badstue, 2013; FAO, 2011).

Mainstreaming efforts in CSA therefore proceed apace in many countries. One notable study on gender mainstreaming CSA in Malawi and Zambia (Khoza et al., 2019) has found that implementers assume homogeneity among women and overlook intersectional power relations on the ground when these projects were implemented. The study was conducted in two disaster-prone districts, namely Chikwawa in Malawi and Gwembe in Zambia, employing mixed qualitative and quantitative methods. CSA technologies in both sites included training in conservation agriculture, planting improved seed varieties, and livestock improvement. New irrigation schemes were implemented in Chikwawa, while in Gwembe, energy-saving stoves and aquaculture were introduced. One major finding of the research indicated male

elite capture in CSA activities especially in those that required considerable productive assets (ibid, p. 537).

*Respondents stated that CSA adoption was influenced by one's wealth status. Focus group discussion participants indicated that factors considered in wealth classification were livestock, food security, income sources and productive assets. The following statements indicate some of the perspectives on wealth:*

*"Women are poor and don't have large tools." (key informant interview in Gwembe, Zambia).*

*"Some CSA technologies require someone who is better off." (key informant interview, Chikwawa, Malawi).*

*Qualitative findings indicated that generally very poor de jure female-headed households were primary target of CSA projects. However, quantitative findings were divergent. The household survey established that these groups of women often face challenges that hinder adoption, such as lack of productive assets.*

Khoza et al., 2019

Over time, experts have continued to fine-tune the incorporation of gender issues in CSA along more feminist and transformative terms than earlier technocratic approaches. However, there is a disquieting sense that these efforts do not go far enough. A review of the 2015 module on *Gender and Climate-Smart Agriculture* of the FAO's Gender and Agriculture Sourcebook, for example, indicated that the module successfully "marks a departure from the more strictly technocratic understandings of inclusion and gender equality that have tended to be the norm in environmental policymaking toward one that is more attuned to feminist scholarship on overlapping structures of gender inequality" (Collins, 2018, p. 2). This module has learned from the sharp skepticism around the propensity of gender mainstreaming to lean towards technocratic approaches, thus failing to challenge patriarchal elites and male privilege (Davids et al., 2014; Parpart, 2014; van Eerdewijk & Davids, 2013). Despite efforts to put in place correctives to these approaches, the module's huge blind spot, Collins argues, was its inability to expose and understand how large-scale, private sector and corporate capture of CSA practices can have counter-productive gendered and social injustice effects. Says Collins (2018, p. 12): "A key gap in the module is the limited reference to how both international institutions and corporate actors define and practice CSA, the repercussions for small-scale farmers and the gender-differentiated effects therein."

**Case 3. Climate Technologies and Hierarchies.** Climate services play an important role in providing information for adaptation decisions in agriculture that have far-reaching implications on people, livelihoods, food security and ecosystems. One type of climate service is drought forecasting, which involves data collection and analysis on current and past weather trends, temperature, precipitation, streamflow soil and hydrologic conditions during droughts. These data are fed into computer models and are simulated to forecast drought (Sheffield et al., 2014).

From 2014 to 2016, Vietnam experienced its worst drought in 90 years, with 52 out of the 63 provinces affected. This emphasized the Vietnamese government's need for a reliable forecast information about rainfall and drought. To address this challenge, a consortium of geographical information systems (GIS) specialists worked with Vietnam's Ministry of Agriculture and Rural Development (MARD) to develop a geospatial tool which was envisaged to enable local MARD agencies to prepare for and respond to droughts, using this tool in two pilot communes (Nhi Ha and Phuoc Ha) in Ninh Thuan Province (Nguyen et al., forthcoming).

Farmers are generally not considered as decision makers in climate change adaptation programs by government authorities, this study revealed. Instead, they are made to rely on administrative decisions,

and are framed as disaster victims or passive recipients of emergency assistance. For women farmers in Nhi Ha commune, many activities require long-term forecasts. They said that when they sense that the next three months would be dry, for instance, they store water or dig deeper ponds, and shift to short-term or drought-resistant food crops (e.g., beans, cucumbers, melons, or vegetables). The government has also urged farmers to abandon traditional paddy rice agriculture and instead to resort to cultivating mung beans and other drought-resistant cash crops. Farmers, especially indigenous groups like the Raglai, resist this because as one of them said, *"The soil in Phuoc Ha is not suitable for crops other than paddy."* The government thinks that their resistance is due to lack of knowledge of new crops. The farmers, however, had no choice but to comply with the decision, as this was part of the agricultural development plan for the province, which was intended to boost farm trade guided by the new drought forecasting tool. In 2018, the provincial Department of Hydrometeorology forecasted that the dry spell would last until August. But the rain came in June and destroyed the mung beans, which led to huge losses for the farmers. To reduce the burden of crop loss for farmers, the government compensated roughly 130 US\$ per hectare of failed crop. The compensation however covered only 15% of the costs that farmers had invested.

The introduction of the forecasting technology in Ninh Thuan Province throws into stark relief the social and gender hierarchies around climate technologies. As Wacjman (2010) tells us, cultures and practices are associated with the introduction and use of these technologies, which are often given little importance by technical specialists who assume these technologies to be bias-free and innocent of political interests. Hierarchical relationships between government authorities and smallholder and women farmers are results of historical and cultural processes of governance and central planning (in the case of Vietnam) and authoritative knowledge that is assumed to reside among those who hold positions of power and who wield scientific knowledge.

**Case 4. Reducing Carbon Emissions Through Cleaner Public Transport.** Many countries have begun efforts to reduce the release of carbon to the atmosphere as a mitigating effort to climate change. In the Philippines, one such initiative is to transform public utility vehicles (PUVs), of which there are around 270,000 throughout the country, into cleaner vehicles. The most well-known of these is the 'jeepney', known as the 'King of the Road' in the streets of Manila, which is a revamped version of the American road jeep, and is also considered to be a form of Indigenous transport, as it was organically created by informal self-employed drivers and owners.

Electrification of PUVs plays a vital role in the transition towards a more sustainable transport system by reducing air pollution and dependence on fossil fuels. The government aims to employ around 200,000 electric jeepneys (e-jeepneys) with the following incentives: 5% subsidy for each vehicle, 6% interest rate for loan purchase payable in 7 years, an equity subsidy of USD 1500. Despite these incentives, jeepney operators and drivers are still hesitant to adopt them due to high investment and operational costs, lack of technical and policy support, and public acceptance, lack of charging infrastructure, and doubts around the availability of vehicle parts. A "unified nationwide organization of drivers and operators" or Piston for short, leads resistance to the government plan to "modernize" old jeepneys and replace them with more eco-friendly models. George San Mateo, a driver for 30 years who heads Piston says, "a driver makes about 500 to 600 pesos or US\$11, for two days of work. Earnings depend on factors such as profitability of the route, passenger volume, and seating capacity. Top-of-the-line jeepneys today cost about \$11,000 to \$13,000. The new model the government wants us to purchase vehicles between \$30,000 and \$35,000." San Mateo warns that the costs to run and maintain these newer models will be passed on to commuters in the form of increased fares. *"That's why there's deadlock on this,"* says San Mateo. *"So, we*

*have no choice but to fight back and launch transport strikes and transport protests." What we want in a modernization program...[is] that the framework should be socially just, democratic, public service-oriented and its long-term perspective should be nationalization of public transport," San Mateo says. "But government doesn't want that" (Westerman, 2018).*

The jeepney drivers are not opposing clean and green advancements, *per se*. They are opposing the blindness to the worsening aggravations that these technologies may cause on their already existing vulnerabilities – which are largely not due to climate change – but to a system that does not prioritize adequate social and labor protection for informal self-employed workers like them. Electrification programs also do not recognize that Indigenous self-employed jeepney drivers are part of the employment of cheap and informalized gendered labor that keeps cities functioning and economies afloat, as they ferry workers to workplaces cheaply every day.

The insights and findings from these four cases above align well with recent reviews of other climate-related programs, albeit gender was not the central focus in these reviews. For example, in the extensive review of 34 empirical studies of adaptation interventions by Eriksen et. al (2021), their main conclusion was that contrary to common rhetoric, adaptation (and mitigation) programs do not necessarily reduce vulnerability, but instead may increase, redistribute or create new sources of vulnerability (p. 11). In the Vietnamese and Nicaraguan case studies, we saw that programs reproduced power relations and social hierarchies. Notably in the Vietnamese project, following the ‘life’ of a drought-forecasting tool as it ‘lands’ on specific contexts and acquires and (re)creates relationships based on historical and vertical command relationships. This case also demonstrates the “situatedness” of different knowledges (Eriksen et al., 2015; Haraway, 1988), including technical knowledge, that does not stand ‘out there’ but clearly is being shaped and re-shaped in constant engagement with different groups of people despite notions of technical inertness and objectivity. In the Nicaraguan case, reified notions of women as climate victims may sometimes blur dynamic realities, yet they are upheld for the purpose of achieving project success. As Eriksen et al (2021) point out, projects insufficiently conceptualize “adaptation success,” which may turn out as lacking adequate and serious contextual anchoring.

Gender mainstreaming climate-smart agriculture has its merits, especially since many similar technical initiatives are gender blind and are represented as purely ‘technical.’ However, as Collins (2018) points out, these mainstreaming efforts are silent on the gender-specific effects of big corporate interests and activities within climate-smart agriculture programs. CSA is then a case of retrofitting adaptation (and mitigation) programs into dominant development trajectories in the same way as the ‘green economy’ retrofits itself and maintains the neoliberal model of economic growth (Harcourt & Nelson, 2015). Similarly, in their review, Eriksen et al (2021, p. 8) remark that retrofitting adaptation (and mitigation) into development agendas hinders addressing the root causes of vulnerability, including changing those development paradigms, discourses, interventions, and power relations that produce vulnerability. In short, adaptation and mitigation, as dominantly practised and planned, are not genuinely transformative. For climate change adaptation and mitigation to be transformative, they will need to use program opportunities ‘to reconfigure the meaning and trajectory of development’ (Pelling et al., 2014). Reducing vulnerability – as intended in combined adaptation and mitigation programs such as climate-smart agriculture – may be difficult to achieve if such programs remain ensconced in the same development trajectories that make humans and non-humans vulnerable through exploitative and extractive means in the first place.

In short, these cases demonstrate how problems arose when struggles over *authority* (top-down practices of governance, as in the Vietnamese case); over subjectivities (reified assumptions about women’s victim

status and the technocratic-oriented subjectivities of program implementers); and over knowledges (privileging the use of science-based technologies directed at climate change impacts (drought) and reducing carbon emissions mismatch socio-economic conditions and contexts) clashed, competed and colluded. Climate change programs, therefore, are political since they involve the exercise of power through authority, knowledges, and subjectivities (Eriksen et al., 2015). However, it is also equally important to see power as a productive force that may bring about beneficial action in harnessing and reshaping climate change responses and programs. This is the concern of the next section.

## 5. A feminist ethics of care: envisioning a better world

Whereas in previous sections, we saw how power can be used to subjugate and marginalize through the dynamic interaction of authority, knowledges, and subjectivities. It is also equally important to exercise power in a *productive* sense to initiate and harness programs and responses as critical opportunities for transformation and innovation (Eriksen et al., 2015). One way to realize this is through the feminist *praxis* and ethics of care.

In the past two years, 2020 and 2021, a global pandemic massively altered the way we live and see the world. We were confined to our homes and gradually, we came to shockingly witness the spiralling numbers of Covid-19 infections and deaths in our homes, communities, countries, and the world. We are only just beginning to realize the magnitude of its effects on our physical and mental health as the disruptions to our lives and those close to us have been deep and lingering.

Covid-19 is essentially a crisis of environment and development. It has brought to our stark awareness that our economies and lives are founded on care: usually on the back of women's unpaid and underpaid care work, on the shoulders of essential workers who are responsible for ensuring food security, collecting our waste and recyclables, but whose work and labor are widely undervalued and exploited (Alfers et al., 2020; Razavi, 2021). Patterns of daily production and consumption – however increasingly unsustainable and exploitative – rely on raw materials extracted from the natural environment to nurture our basic and other needs.

Reports and studies are now starting to emerge that highlight the effects of biodiversity loss, deforestation and land conversion, extractive activities such as mining, oil drilling, and massive road building, and the sale of live wild animals, all of which increase the likelihood of exposing human and non-human populations to novel viruses (Berkley, 2020; Foundation, 2020; McMahon, 2020). 'We invade tropical forests and other wild landscapes, which harbour so many species of animals and plants – and within those creatures, so many unknown viruses. We cut the trees; we kill the animals or cage them and send them to markets. We disrupt ecosystems, and we shake viruses loose from their natural hosts. When that happens, they need a new host. Often, we are it' (Quammen, 2020). Protecting the dignity, land and human rights of indigenous peoples who occupy much of the earth's forested areas is also the best way to keep forests standing, which in turn reduces global warming and biodiversity loss, suggests one study (Walker et al., 2020). Continued marginalisation and exploitation of human and non-human species also show us that pandemics not only produce differentiated and unequal effects, but that deep and widespread inequality may also actually cause pandemics (Spinney, 2020)<sup>4</sup>.

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<sup>4</sup> There is no direct evidence that climate change is influencing the spread of COVID-19, but we do know that climate change alters how we relate to other species on Earth and that matters to our health and our risk for infections. As the planet heats up, animals big and small, on land and in the sea, are headed to the poles to get out

The drivers of Covid-19 are then also the same drivers of climate change, vulnerability, and social inequality. By this, we recall centuries of colonial, extractivist models of economic growth, in which the relentless pursuit of wealth and power entrenched the exploitation of natural resources and Indigenous communities. The history of anti-colonial resistance is interwoven with that of preserving and defending nature: Indigenous, Black, Global South and racialized communities have always been at the forefront of the fight against deforestation, land grabs and resource exploitation (Malik, 2019; Women, 2021). As stated earlier, nature and women's labour are both treated as infinitely elastic and readily exploitable, jointly undervalued, subsidizing all economies (UN Women, 2021). Care is thus 'the other' to the dominance of the market in our world today.

Intersectional feminism is explicitly sensitive to inequalities and thus necessarily seeks to democratize, ameliorate, care for and lend justice to situations where social exclusions have led to forms of disadvantage in climate change and disaster contexts. Making care central to our work begins with a notion of the interconnectivity between people, nature and non-human beings or "a social ontology of connection: foregrounding relationships of mutuality and trust," (Lawson, 2007, p. 4) that goes beyond defining care as uniquely and essentially a feminine or maternal trait, or solely the responsibility of women. Activists and academic feminist political ecologists are working from more pluralistic ontologies that extend and deepen analyses of care to explicitly re-include ecologies and the non-human in relations of care, establishing connections that market-based approaches to gender and the environment have erased.

The challenge remains "to build a theoretical and empirical analysis of the structural and historical relationships producing disease, hunger, poverty, environmental decline and disasters – or more broadly—the need for care" (Lawson 2007: 8). As feminists are showing, an ethics of care brings into question prevailing "principles of individualism, egalitarianism, universalism, and of society organized exclusively around principles of efficiency, competition, and a "right" price for everything" (Lawson, 2007, p. 8) and with this, a questioning of productivism and economic growth as the values driving our endeavours.

A feminist ethics of care therefore recognizes, sustains, and unifies the symbiotic and interdependent relationship between nature and society. It is this rationale of care for humans and nature that produces, reproduces, and sustains life and livelihoods and gives preference to provision, need satisfaction and enforcement of rights over the principle of efficiency and the egoistic utility maximization enshrined in the careless and reckless accumulation economy (Wichterich, 2015, p. 85).

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of the heat. That means animals are coming into contact with other animals they normally wouldn't, and that creates an opportunity for pathogens to get into new hosts. Many of the root causes of climate change also increase the risk of pandemics. Deforestation, which occurs mostly for agricultural purposes, is the largest cause of habitat loss worldwide. Loss of habitat forces animals to migrate and potentially contact other animals or people and share germs. Large livestock farms can also serve as a source for spillover of infections from animals to people. Less demand for animal meat and more sustainable animal husbandry could decrease emerging infectious disease risk and lower greenhouse gas emissions. We have many reasons to take climate action to improve our health and reducing risks for infectious disease emergence is one of them (<https://www.hsph.harvard.edu/c-change/subtopics/coronavirus-and-climate-change/>).

The Paris Climate Agreement and the Sustainable Development Agenda of 2015 pledged to “leave no one behind.” In honoring the recent passing of feminist activist-scholar-development practitioner, Kamla Bhasin, who worked in the UN Food and Agriculture Organization for many years, I recall her words at the 2018 Stockholm Forum on Gender Equality, where she said: “the SDGs will never succeed unless market fundamentalism is dismantled and ended.” Indeed, as Kamla says, unless the global accumulation economy is radically transformed, many will continue to remain behind because the accumulation economy is premised and anchored on leaving people (and nature) behind. Unless climate change programs align with this view, their success at reducing vulnerability will continue to remain elusive.

More than ever before, *care-full* feminist solidarities across activist, academic, and bureaucratic spaces are required, recognizing the role that each of us must take to counter any possibility that the opportunities for social-, gender- and climate-just transformation is lost.

## 6. Potential pathways for action and reflection

At the beginning of this background paper, it was stated that intersectional gender is linked with climate change and disasters in multiple ways: the differentiated climate and disaster impacts and outcomes; the gendered dimensions of responses to climate change through adaptation and mitigation; the combined appropriation and exploitation of nature and gendered labor associated with essential workers that anchor the economy of accumulation, and which has driven climatic change; and the emerging collective voices on gender and climate justice seeking to transform existing exploitative patriarchal and capitalist structures and practices.

Through examples, the paper also took stock of the shortcomings of adaptation and mitigation programs that produce and reproduce exclusions and vulnerabilities, thus underscoring the political nature of these programs originally framed as technical initiatives. Taking *politics and power* alternatively as a productive force instead of an instrument for marginalization and exclusion, several potential practical pathways emerge that could serve as modest portals to a kinder, more feminist-caring world through reflection and action. They are divided according to action-oriented and research-oriented pathways, as follows:

Action-oriented recommendations:

- (i) **Actively seek and enable partnerships with grassroots-led and social movement collectives** that assert the need to restore and sustain the symbiotic and reciprocal relationship between society, women, and nature as part of a global ecosystem that we should collectively care for. Find the spaces and scales where these collectives are best visible instead of inviting them as token representations in big global meetings where their voices may be less heard. Forge common spaces for interaction, dialogue, and forward-looking concrete actions of resistance, celebration, and alliance building. This will create a culture of authority based on solidarity and shared interests.
- (ii) **Translate other marginalized people’s voices into central parts of UNFCCC COP reporting commitments through consultative processes:** Mandate committed reporting processes to be more inclusive and empower governments to enjoin facilitators that would translate knowledges of Indigenous groups and women into constituting *central parts* of the National Adaptation Plans of Action (NAPAs), Nationally Appropriate Mitigation Actions (NAMAs), and National Determined Contributions (NDCs/INDCs). These nationally committed reporting

processes could actively enjoin Indigenous, gender and climate justice collective groups to be part of the reports drafting, solutions-seeking and consultations.

- (iii) **Enable transparent and socially inclusive processes in climate change and disaster risk reduction programming and planning:** Recent stock-takes and research studies on some adaptation and mitigation programs reveal that they reproduce or create new vulnerabilities. Measures must then be taken to ensure that procedures of free, prior, and informed consent of potentially affected groups be properly and strictly implemented. Additionally, planning programs should involve them at the early stages and not *ex post facto* when deals and agreements have already been transacted and forged with various third parties.
- (iv) **Build capacities for planners to more fully understand and dialogue with feminist organizations:** Create opportunities for women's self-organization, critical reflection, and partnerships with gender and climate justice collectives to strengthen women's claims to their own bodies, to social and natural resources, and to authorities' accountability. Create spaces where women's voices and rights are duly recognized and exercised. Promote women's equal participation and voice in existing civic organizations to share experiences and solutions across groups and sectors, including transnationally. Support and create intersectional gender-awareness and skills-training opportunities for men and women in different systems and institutions, with the intention to redistribute care work and to cultivate alternative views of care for people and environment.
- (v) **Convene gender experts in environmental and climate programs:** This is an important move to build a community of gender experts in science-led programs to create a supportive environment for dialogue, learning and reflection. This will bring to fore the power struggles around epistemologies and further sharpen understanding of how environment, climate and society are being framed by major science-led institutions. This is also important for reflecting on innovation and creative engagement with local groups and realizing more concrete ways to enact feminist ethics of care.

Research-oriented recommendations:

- (vi) **Conduct vulnerability analysis that focus on drivers of vulnerability, not impacts of climate change alone:** Collect stories of embodied experiences of climate change to see connections between bodies (dis-ease), labor, nature and climate through field-level data. Engage with local groups with a consciousness of intersectionality and positionality as being factors that situate everyone's knowledge.
- (vii) **Examine how programs on green transformations or transitions to low carbon options are being framed** with the following questions: how are solutions being framed and whether they retrofit persistent trajectories of growth? whose knowledges are dominant and whose knowledges are silenced? how is 'success' being defined in these programs? what types of benefits are being envisaged and for whom? are vulnerabilities reduced or reproduced?; and whether and how social protection measures are in place.
- (viii) **Combine assessments of technology diffusion with drivers of vulnerability:** based on the premise that technologies are socially-embedded and political, research can look into

mismatches between introduced technologies and drivers of people and nature's vulnerabilities and cultures to understand where gaps lie and how local knowledges can also drive innovation.

- (ix) **Collect data using intersectional gender analyses during climate events:** Assemble monitoring teams as core members of the national disaster coordinating boards, emergency response entities, and climate change monitoring bodies whose chief task is to partner with statistical monitoring bodies and to collect on-the-ground qualitative accounts and narratives of people's differentiated experiences prior, during, and after extreme climate change events and disasters. These teams should also have skills for synthesizing these accounts and complementing them with statistical data reported during these events. As a result, reports will provide a more holistic assessment of the depth and breadth of crisis and post-crisis experiences to enable more directed and precise interventions by governments and NGOs, thus avoiding 'one size fits all' approaches. Journalists can play an important role in this effort as they have the skills to collect a mix of qualitative and quantitative information but collected data should be synthesized by gender and social science experts on disasters and climate change.

This knowledge is vital in creating a culture of acceptance among policy makers that values experiential or embodied knowledge. This knowledge includes not only physical dimensions but equally important, affective and embodied aspects of experiences that reveal people's specific and differentiated vulnerabilities and responses. Utilize these comprehensive gender analyses as a basis for critical reflection and dialog with scientists, policymakers, planners, and stakeholders to identify strategies for change and to then formulate, and follow through on, appropriate measures and indicators in pursuit of transformative programs.

- (x) **Seek and learn from good examples of communities of care:** Learn from the existing good examples of caring and 'commoning' for the planet led by women's and Indigenous people's groups or of so-called postcapitalist economies. In the learning process, it is important to also understand how leaders and members of these groups navigate and constantly transform patriarchal and colonial relations as they care for each other and non-human others. These insights and lessons are vital as they serve as rationalities that will eventually travel and take root in creative but different forms in other contexts, spaces and places.

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