

Women and Climate Change: A Case-Study from Northeast Ghana

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This paper argues that there is ethical and practical necessity for including women's needs, perspectives, and expertise in international climate change negotiations. I show that climate change contributes to women's hardships because of the conjunction of the feminization of poverty and environmental degradation caused by climate change. I then provide data I collected in Ghana to demonstrate effects of extreme weather events on women subsistence farmers and argue that women have knowledge to contribute to adaptation efforts. The final section surveys the international climate debate, assesses explanations for its gender blindness, and summarizes the progress on gender that was made at Copenhagen and Cancun in order to document and provoke movement toward climate justice for women.

"How is climate change different for women?" "Because women do different work, they have access to different resources and have different priorities in their lives in most societies."
(WE Speak 2007)

Climate change is not new. Everyone has experienced, for example, some kind of seasonal change, whether from winter to summer, or rainy season to harmattan. Geology describes larger cycles of change in which the earth is still moving out of its most recent ice age. In the past few decades, however, *anthropogenic* climate change has been the subject of widespread attention. The human species, in large part by burning fossil fuels, is contributing large volumes of "greenhouse" gases to the atmosphere, so called because they warm the planet by preventing the sun's heat from escaping back into space. Despite ongoing controversy and vocal denials that anthropogenic climate change exists, the Intergovernmental Panel on Climate Change's

3000-page 2007 *Fourth Assessment Report* established scientific consensus concerning its reality.

How does climate change affect women? Little is known about climate change impacts on women, despite the United Nations Population Fund Report, *Facing a Changing World: Women, Population and Climate*, stating in 2009 that “women are among the most vulnerable to climate change” (UNPF 2009, 4). Sandra Freitas, speaking to the United Nations Framework Convention on Climate Change in April 2010 on behalf of Women’s Environment and Development Organization, noted, based on her experience every day in Togo, that “the impacts of climate change are not gender neutral and are likely to exacerbate existing gender inequalities” (WEDO 2010). She attributes the differences to socially constructed gender roles in which men engage in income-generating production while women are responsible for reproductive household activities. These household tasks include food production and preparation. Food security in the face of a changing climate is a well-documented concern (Longhurst 1986; Bohle et al. 1994; Al-Hassan et al. 1997; Okai 1997), and is particularly worrying for women farmers because of their role as subsistence providers.

This paper examines the impact of drought and flooding on the lives of women subsistence farmers in northeast Ghana. The argument is in a sense hypothetical—there is not enough scientific data on the region to establish that the drought and flooding experienced across the north of Ghana in 2007 that devastated the year’s crop and left fifty-six people dead and more than 330,000 homeless (Ghanaweb) could be attributed with certainty to global climate change. The *Fourth Assessment Report of the Intergovernmental Panel on Climate Change* itself recognizes the inadequacy of data for empirical downscaling to the local level of its findings. Yet that report also predicts that such extreme weather events will increase dramatically as a result of global climate change (Parry et al. 2007). Whether or not, then, the flood in Ghana was caused by climate change, it serves as a locus for examination of what impacts on women subsistence farmers’ lives can be anticipated when climate change does cause this kind of extreme weather event.

Nor can this analysis necessarily be generalized or transferred to other contexts. Yet in parts of Africa, women are responsible for 80% of food production (Eade and Williams 1994, 66–67), and 70% of the world’s farmers are women, who produce 60–80% of the world’s food crops (Women for Women International 2010). Thus even if the Ghanaian experience is not transferable, failing to address women’s needs in climate change policy threatens global food security. What that experience clearly demonstrates is that climate change impacts like extreme weather events can be severe for women in the global South, while their capacity for adaptation is limited by exclusion of their needs and perspectives from climate negotiations. Ethics thus requires that their situation

be addressed in order that suffering not be ignored; distributive and intergenerational justice, given the health impacts of hunger on their children, are abrogated by gender inequity in climate change policy. Beyond these ethical considerations, practical consequences of continuing gender exclusion in climate policy also warrant examination, as this significant global challenge requires the marshaling of all resources in response.

This paper, then, is an argument for inclusion of women's voices in climate negotiation, with particular emphasis on the voices of women from the global South. This first section concludes by sketching the paper's preliminary premises for the argument that impacts on women need to be accounted for in climate change policy. These assumptions concerning the connections among gender, poverty, and environmental degradation are well known in international development studies and related disciplines, and are documented here briefly but explicitly, as not all readers will necessarily be familiar with those literatures. The second section provides data collected on-site concerning flooding in northeast Ghana to demonstrate impacts of severe weather events on women. These two sections together constitute a negative argument that gender warrants attention in climate change policy because of the devastating consequences of climate change for women. The third section offers a positive account by arguing that women in a context like Ghana can contribute significantly to adaptation efforts. The final section surveys the history of the United Nations Framework Convention on Climate Change, identifies and examines explanation for gender blindness, and summarizes the progress on gender that has been made in 2009 and at the most recent round of negotiations in Cancun.

Since the early 1990s, economists and development analysts have identified connections between gender and poverty. Lisa Leghorn and Katherine Parker note that "women are one-third of the world's formal labor force and do four-fifths of all informal work, but receive only ten percent of the world's income and own less than one percent of the world's property" (Leghorn and Parker 1991, 14). Women, moreover, "make up an estimated 70 per cent of the world's poor people; households maintained by women alone . . . are the world's poorest households" (Eade and Williams 1994, 65–66). This phenomenon is known as the "feminization of poverty" in recognition of women's increasing share of global poverty.

Moreover, a substantial literature identifies connections between poverty and environmental degradation. As Oxfam's *Handbook of Development and Relief* notes, there is "a downward spiral of cause and effect: poverty can cause environmental degradation, as poor people over-exploit already strained resources; and environmental degradation causes further poverty as people are unable to find the resources to meet their daily needs" (Eade and Williams 1994, 66). Women in the global South contribute to environmental

degradation as they access diminishing resources like wood and water in the ongoing need to support their families. Oxfam accordingly warns against approaches that blame the victim without “seeking an analysis of the wider social and economic factors” that trap the poor in marginal environments (68). It is through such analysis that the cycle can be disrupted by simultaneously addressing women’s poverty and environmental degradation.

When the feminization of poverty is put together with the connection between environmental degradation and poverty, it is clear that women are especially vulnerable to environmental damage. Indeed, that women suffer disproportionate economic and other harms in consequence of environmental degradation has been well documented (Diamond 1990; Bullard 1993, 1998; Shiva 1993; Harvey 1996; Kettel 1996; Warren 1997, 2000; Foster 1998; White 1998). Philosophers and environmental ethicists have also made the direct connection between gender and environmental degradation, arguing that women’s lives in particular worsen in direct proportion to local ecosystem damage (Shiva 1988, 1993; Warren 1997, 2000; Glazebrook 2010). Given the feminization of poverty and the vulnerability of the poor to environmental hazards, it is no surprise that globally, women are disproportionately threatened by environmental degradation and are the first affected by it (Eade and Williams 1994, 66). Thus Ghana’s Environmental Protection Agency noted in 2007 “the importance of the environment and particularly climate change in women’s lives” (Report on Sectoral Climate Change Impacts 2007, 28).

GHANA: WOMEN FARMERS AND CLIMATE CHANGE IMPACTS

In Ghana, significant data have existed for some time concerning the important part women play in the struggle against poverty in their role as farmers. By 1993, they were growing 70% of food crops (GPRS I), and heading 30% of households (Lloyd and Gage-Brandon 1993). By 2000, the number of women farmers had risen by over 250% from 1970 (MOFA 1991), and 49% of women were self-employed in agriculture (GPRS I). In 2003, Ghana’s first Poverty Reduction Strategy recognized that nearly half the female population was working in agriculture, but said that too little was known about women’s situations to develop useful policy. The Ghana Social Watch Coalition Report argued in response that Ghana would be unable to meet Millennium Development Goals precisely because of women’s marginalization, and requested the Poverty Reduction Strategy to incorporate gender (GSWCR 2004). The second Poverty Reduction Strategy does pay attention to gender, but strategies are directed at mechanization and emphasize industrial farming. Indeed, development models including participatory initiatives for the most part aim at capital-intensive, large-scale, industrial models of agricultural development. Virtually no assessment exists of the adequacy and effectiveness of such approaches for

meeting women's needs as subsistence farmers, but it is no great leap in logic to see that these approaches are not readily compatible with women's subsistence-crop production that is typically small-scale, low-tech, and supported by minimal capital input.

Ghana, moreover, suffers the "gender gap" in development that has been well documented across the planet (Dwivedi 1980; Shiva 1988; Bakker 1994; Nesmith and Wright 1995; Venkateswaran 1995; Dwivedi et al. 2001). Ghanaian women face persistent social inequalities. They have a 15–20% longer workday than men (Haddad 1991; Lloyd and Gage-Brandon 1993). Only 19% complete formal education, compared to 37% of men (GSWCR 2004), and only 42% are literate, compared to 66% of men (GPRS II). Women farmers face the further challenges of limited access to credit, machinery, labor, fertilizer, and agricultural extension services (University of Sussex 1994), as well as exclusion from more revenue-generating industries like agroforestry (GPRS I). They have weak land-tenure rights (Awanyo 2003; Whitehead and Tsikata 2003) and have not been part of recent World Bank initiatives in other African countries to facilitate land registration in order to secure women's ownership of and access to land.

Against that background, in 2007–08 I collected data in the village of Kantia in Ghana's Upper Eastern Region about weather impacts on women subsistence farmers. Here in northeast Ghana there is no infrastructure or technology to provide irrigation, so women farmers are highly dependent on the weather—they rely on the rainy season and have only one growing cycle each year. In 2007, the rains did not come and the region suffered drought. Then in August, sudden heavy rains were compounded by Burkino Faso to the immediate north opening dams in response to their own inability to contain massive rain run-off. Ghana's northernmost regions were catastrophically flooded. In the Upper Eastern Region where I conducted research, 31 people were killed and 100,000 left homeless (Ghana Home Page 2007).

Dr. Rose Mensah-Kutin's assessment of women's coping strategies after the 2007 flood uncovered their vulnerabilities (ELIAMEP 2008, 39–40), and more recent evidence corroborates this finding (Westerhoff and Smit 2009). At the 2007 meeting of the UN Commission on Sustainable Development, Ghana's Director of Environment noted that "Ghana [sic] women are particularly vulnerable to the impacts of climate change, both socially and economically" (Kuuzegh 2007), and at the 2009 meeting, he further noted, in particular reference to factors affecting agriculture, that "land degradation, desertification and soil erosion hit hardest at the local level and those most affected are the poor, especially women who depend on natural resources for their survival" (Kuuzegh 2009).

Of the approximately 150 women I researched, either in focus groups or in individual interviews, all had been affected by the flood, and virtually all had

lost the greater part of if not their entire crop. These women do not grow cash crops but farm for the immediate subsistence of their dependents, who are their children, the children of deceased relatives, and elderly, sick, or handicapped relatives incapable of supporting themselves. The women had on average 6.2 dependents; the greatest number supported was 17. Crop losses are significant because they affect nutrition, and malnourishment in children can have life-long consequences on, among other things, bone structure and brain development. Also, costs associated with school can no longer be paid. Four women said that they sold small amounts in the market to purchase necessities for school such as uniforms and books. One specifically said she would not be able to afford these things this year. Thus failure to assess and respond to the needs of women in light of catastrophic weather events that are increasing because of global climate change results in intergenerational as well as distributive injustices, as women struggle to shoulder the burden of the damage such weather events cause.

There is virtually no community support for single women in this area. The only community development identified in the study that might allow for collective ownership of resources was the rice-grinding mill at the Single Mothers' Association, funded by Oxfam. The most vulnerable women of the community are not strong enough to grow rice, however. Rice is a labor-intensive crop, and three women interviewed said explicitly that they do not grow rice for this reason. None of the women interviewed could afford to pay money to hire bullocks, plows, and plowmen. So they often pay by feeding a quasi-volunteer, perhaps also later sharing part of their yield. This means that the women are not high-priority clients and often plant and accordingly harvest late. As one interviewee stated, "the owner of the bullock will be doing others till they finally come to you. By that time it is a little bit late for the farming." Beyond crop losses, rebuilding or repairing destroyed or damaged housing is a particular problem for single women. House-building and repair are community tasks coordinated by the men, who form a group and go from one member's house to another. The women of the house fetch water, and the men mix the mud and build the walls. A single woman simply has no entry-point into the group. Women farmers are accordingly crucially vulnerable in several ways to climate change impacts, and their vulnerability increases in direct relation to both their economic and marital status.

Climate-induced crop loss does not, however, threaten only Ghana's single mothers. But its full significance has not yet been recognized in agricultural and other policy. According to Ghana's second Poverty Reduction Strategy, agriculture plays a significant role in its economy, contributing 38% of its Gross Domestic Product and employing 60% of its population. The threat climate change poses to food security is a documented concern globally and in Ghana (Longhurst 1986; Bohle et al. 1994; Al-Hassan et al. 1997; Okai

1997). Yet the second Poverty Reduction Strategy relies on agriculture to establish Ghana as a middle-income country, while failing even to mention climate change in the section addressing challenges to this plan. This oversight is especially dangerous because the economic marginalization of subsistence farmers already complicates their visibility to policy-makers. If Ghana's strategy for reducing poverty accounts for neither climate change nor women's contribution to the national food basket, it will not be able to address impacts of climate change on women farmers' productivity that threaten food security.

Since the overwhelming majority of Ghanaian women farmers are subsistence farmers, only a tiny portion of what they grow gets to market while most is consumed in the home. Thus their crops are not included in the country's Gross Domestic Product. Marilyn Waring has shown that women's unpaid labor is a significant component of national economies, especially in developing countries, but that it does not figure in traditional economic analyses precisely because it is unpaid and therefore not counted using the traditional indices of economic reckoning (Waring 1988, 1999). In Ghana, women's subsistence agriculture plays a significant role in the economy, which has not been fully understood by policy-makers, despite women's contribution to the national food basket. In 2003, they were growing 70% of food crops (GPRS I), but by 2010, the Social Watch Coalition was reporting that women are responsible for 87% of food crop production (SWC 2010). Through interviewing women farmers in northeast Ghana, and in extended observation living in a small village, I noted that adult children and other household members who have jobs elsewhere come home regularly and often, on weekends and holidays, and depend on household crops as a reliable food source. They simply cannot afford to support themselves on their wages, even as government employees. Yet increased salaries that would make them entirely self-supporting would put a significant strain on government coffers if this were a widespread phenomenon, and of the roughly 150 women I discussed this with in focus groups and interviews, none thought this practice unique to their community.

Women's unpaid labor is accordingly a crucial component of support for the Ghanaian economy and its continuing function. As one woman put it, "I farm to help the country as a whole." Arguments for better accommodating women's needs in formulating climate policy are therefore not limited to their status as victims, that is, justice issues of burden distribution and ethical considerations of harm and suffering, though these grounds are sufficient to warrant attention to their needs in policy debate. Further, women are actors whose inclusion or exclusion has practical consequences to the national economy and the national food basket. The following section argues that there are, moreover, practical benefits to women's inclusion.

ADAPTATION: VALUING WOMEN'S KNOWLEDGE

Policy critics have long noted that the first step in generating functional agricultural and development policy is incorporating information on women's daily living conditions (Shiva 1988; Bakker 1994; Venkateswaran 1995; Dwivedi et al. 2001). At the very least, this information identifies challenges that such policy must address. Climate change adaptation policy, whether in its own right or when incorporated into broader programs of agricultural and development policy, can involve women as more than just objects of discussion. In a variation of standpoint epistemology, in which cultural location is argued to situate women well to critique prevailing norms (Harding 1998, 2004), several scholars have noted that women's social location and roles give them unique perspectives on environmental issues (Rodda 1991; Warren 1992; Reardon 1993; Merchant 1995). Indeed, women who live in developing countries often work closely with their environment in meeting their family's daily living needs, especially if they are subsistence farmers. Their traditional knowledge systems, moreover, have supported sustainable practices over long historical periods (Curtin 1999). Women subsistence farmers in the global South, especially those who live in ecologically fragile and sensitive areas, have expertise that includes generations of experience in accommodating cyclical changes in weather patterns. Some scientists have already recognized that traditional knowledge has an important role to play in adaptation (Gyampoh et al. 2009), so it makes no sense and is counter-productive not to include women's perspectives in climate change adaptation discussions. Arguments for attention to their situations in responding to climate change must focus not only on their experiences as victims, but also on the contributions they can make to the climate struggle as resilient and expert actors.

In Ghana, scholars have long documented farmers' responses to weather (Benneh 1974), and their household strategies for adaptation to changing weather patterns (Longhurst 1986; Mortimore 1989; Webb and Reardon 1992; Ellis 1998; Warner et al. 1999). The ecosystem where I conducted research in northeast Ghana is Sudan Sahel, which extends from east to west across sub-Saharan Africa. Such semi-desert drylands are ecologically fragile, and declining climate conditions in the drylands in Africa have been noted for some time (Hulme 1994; Mortimore 1998), with precise attention to West Africa (Mortimore 1989; Dietz et al. 2001; Maranz 2009) and to Ghana's Upper Western Region (Nsiah-Gyabaah 1994; van der Geest 2004). The Upper Eastern Region is one of the poorest areas in Ghana, and the hot, dry climate makes it particularly sensitive to environmental stresses. The women of the Upper Eastern Region thus have long-standing experience in adaptation practices in the face of fragile, changing, and marginal conditions.

The women I interviewed all noted changing climate conditions since they began farming. Even those who had been farming for only five years said their yields were diminishing, and several commented on the poorness of soil quality and how much drier conditions had become. Reliant only on the rains to water their crops and often without even the resources to buy fertilizer, these women have specialized knowledge for maximizing production. They know which crops do best in which of their fields. Cathy said she does not plant rice in her groundnut fields as it does not do well there.¹ They intercrop, that is, inter-seperse crops throughout a field, and have expert knowledge of which combinations work together. Groundnuts (peanuts) work well with bambara beans (also called garbanzo beans or chickpeas), but millet is grown with ordinary beans (black-eyed peas). Eunice said that at certain times she wouldn't plant maize alone, and in the dry season, when she is planting watermelon, she sometimes also plants sorghum and millet. Another strategy is crop rotation. Guinea corn and a variety of millet known as "late millet" are used by many of the women in rotation so the guinea corn can prepare the soil for the millet. Gina said that when she plants groundnut, "the land will not be fertile for groundnut again" the following year, so she plants millet instead, and sometimes when she farms rice, she knows whether it is a good year also to grow groundnuts or beans. Jackie said that "when you use one [crop] on the farm today, the next time you will see that this part is not so fertile for that one, then you change it to another side [of the field]," that is, soil stays healthy and fertile if the same thing is not grown on it repeatedly. Kate's farm is "very big, so I rotate: if I plant millet here [on a particular plot of land], the next time I plant groundnuts, the next time I plant guinea corn, the next time I change it for maize, so I repeat and the crops are millet, guinea corn, groundnuts, round beans, and rice." Nora doesn't rotate on such a structured plan as Kate, but experiments with different crops to decide what is best to grow in the existing conditions: "I plant some kind of seedlings today, and next time change to another one, and if it is not doing well, then I change to a different one." When she decides against a crop, she doesn't burn the sample seedlings, but buries them so they can take root, or saves them to use as fertilizer. She also noted, as did Olivia, the importance of spacing the crop, as crops do not grow well when over-crowded. Hannah includes potatoes and sweet potatoes in her crop rotation to supplement her family's diet.

Once the crop is in, the women know how to improve production at minimum cost. For example, the women cannot afford insecticides, but Marian explained how spreading ash is an effective insecticide when growing vegetables. Likewise, these women do not use chemical fertilizers. There are programs through Ghana's Ministry of Food and Agriculture to get loans to support purchase of such chemicals, but the women are caught in a vicious circle: they cannot apply for a loan without a bank account, but they cannot open

an account until they have the money to put in it. They simply cannot afford a bank account. For the most part, they use animal dung as fertilizer that they collect from their fields, through which livestock roam during the day. Tammy described how to “beat [the dung] into pieces and with the rain it will get dissolved.” Nora described another method of producing fertilizer: “put some onion leaves and some leaves and mix them so that it will not get still, and then spread it as fertilizer.”

The women I interviewed accordingly had expert knowledge about conditions and practices to maximize their yield while maintaining soil integrity. All the women began farming with their families, and so learned through their parents practices that have been honed for generations. Iola described her knowledge as an intergenerational heritage extending through generations: she “learned from [her] ancestors what they were doing and what they were getting” as agricultural output in consequence of their practices. The agricultural and adaptation expertise of these women, their sensitivity to local conditions and long-standing knowledge-practices about growing food in marginal conditions offer important contributions to adaptation efforts as other ecosystems affected by climate change become more marginal for food production.

Women’s expertise elsewhere has likewise been documented. Lynn R. Brown and her colleagues describe how scientists at the Rwandan Agricultural Research Institute and the International Center for Tropical Agriculture in Colombia invited women farmers to examine more than twenty bean varieties and take home and grow the two or three they thought the most promising, and how their selections substantially out-performed the selection of the bean-breeder scientists (Brown et al. 1995). They note similar results in India and the Philippines. Such evidence has led to growing interest in women’s agricultural knowledge and traditional ecological knowledge (known in the literature as TEK) more generally. In the case of Kenyan agroforestry, for example, “the unfolding discovery of women’s ecological, political, and social science as gendered survival skills [is justified] from the point of view of better, more complete science as well as from the ethical imperative to serve women’s interests as the ‘daily manager of the living environment’” (Rocheleau 1991, 156). Likewise, at the 2007 meeting of the UN Commission on Sustainable Development, Ghana’s Director of Environment called on “governments and all relevant institutions to involve women at all levels of decision making on climate change to take advantage of the special skills of women in natural resource management” (Kuuzezh 2007).

There is among policy-makers a developing awareness of women’s resilience in adapting to climate change and recognition that women are critical to climate change solutions (WEDO 2010, 1). As indicated by the Women and Gender Constituency Report, what is called for is “strengthening South-South and South-North exchange of experiences and collective learning” (WGCR

2010, 6) so that women can communicate with one another their knowledge of coping strategies and expertise in ecosystem management in the face of a changing climate. Since swift climate change impacts are likely, however, to reduce the capacity of women to cope with changes, women's knowledge, needs, and input require *immediate* integration into policy- and decision-making at local, national, and international levels. For the evidence presented above concerning Ghanaian women's environmental expertise indicates that their dire situation is not a consequence of their lack of capacity to cope with marginal climate conditions in a fragile ecosystem. Rather, the rapidity and extremity of climate change impacts are overwhelming women's traditional, long-standing agricultural management practices.

GENDER IN INTERNATIONAL CLIMATE POLICY

This final section begins with an extremely brief overview of the United Nations Framework Convention on Climate Change (UN Framework Convention). The first four paragraphs do not address gender but make the subsequent discussion of gender possible. The objectives of the Kyoto Protocol indicate the tension between stabilizing greenhouse gas production while not threatening food production and economic development that is at the heart of failure of the protocol to garner adequate support to be effective, and the failure of the Clean Development Mechanism to meet the needs of the global South. The needs of women subsistence farmers are pressing in both these failures because of their role in maintaining food security and in the poverty alleviation that constitutes successful development. Understanding the technical distinction between mitigation and adaptation is also crucial here because the only substantial explanation for the lack of attention to gender in climate negotiations draws on this difference. The section then assesses this explanation, and ends with a note of hope by summarizing the progress on gender that is evident from the Copenhagen and Cancun meetings.

In 1994, the UN Framework Convention set an overall framework for intergovernmental efforts to tackle the challenge of climate change, and every year since, UN member states have met at a Conference of Parties to try to reach agreement on how to proceed to address climate change. The Kyoto Protocol was adopted at the 1997 Conference of Parties, implementation rules were adopted at Marrakesh in 2001, and the protocol went into force in 2005. Article 2 of the protocol sets its "ultimate objective":

to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level

should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. (UNFCCC)

The goal is thus first and foremost mitigation, which is a technical term in climate talks meaning cutting emissions of greenhouse gases. The statement of objective indicates that adapting to changes in climate is also a goal, and “adaptation” here is specified to include ecosystem adaptation as well as human adaptation with respect to food production and sustainable economic development. As detailed above, food security is an especially significant concern in countries in the global South like Ghana that rely on subsistence crops to fill the national food basket and to provide economic supports that may have not yet been noticed by policy-makers.

Developed and developing countries have an interest in both mitigation and adaptation, but with different expectations and emphases. Developed countries have consistently demonstrated reluctance during negotiations to commit to mitigation targets that entail actual or perceived economic sacrifices. Yet at the same time, they are concerned that developing countries not increase their emissions through their development efforts. Likewise, developing countries that suffer climate change impacts because of emissions in large part from developed countries typically expect those countries to contribute to an adaptation fund, while not wanting to compromise development themselves—especially with respect to poverty alleviation—by making promises that they will not increase emissions as they industrialize their economies. Indeed, strong differences in viewpoint with respect to global climate policy have emerged between developed countries in the global North and developing nations in the global South. Exceptions to this general overview include, for example, Brazil, China, and South Africa, whose economic development shifts their location in the balance between mitigation and adaptation. Nonetheless, this broad summary of differences of interest between so-called Annex I states on one side that include most of the developed world, and less developed countries in Africa and Asia and small island states on the other.

At the Fifteenth Conference of Parties in December 2009 at Copenhagen, these differences seemed insurmountable. According to Meinhard Doelle’s analysis, developed nations were hesitant to push developing countries to make commitments about developing without increasing emissions because they did not want to be pushed back to make mitigation commitments. Similarly, developing countries in the global South were reluctant to push Annex I states for mitigation commitments because they were not prepared then to be obliged to compromise development options (Doelle 2010, 96). Breakdown of the talks could thus be attributed to key bargaining groups not wishing to be negotiated

into compromising perceived interests. The failure of Copenhagen (called “Brokenhagen” by some) also appears indicative of, and to some extent caused by, the failure of the Clean Development Mechanism in Article 12 of the Kyoto Protocol that attempted to generate low-emissions development strategies in the global South financed by developed countries.

Under the Clean Development Mechanism, governments and organizations investing in developing countries are rewarded for funding carbon-neutral or carbon-reducing development initiatives. The mechanism has, however, been subject to heavy criticism that indicates a double inability, that is, inability to prevent emissions increases in development, and inability to meet development needs. Failure to reach agreement beyond the Kyoto Protocol’s expiration in 2012 and to accommodate pressing needs in the global South with respect to balancing poverty alleviation and development against climate change mitigation is increasing the harms and threats of climate change for women in developing countries.

As has been noted by the Asia Pacific Forum on Women, Law and Development, “voices of rural and indigenous women from the global South are barely audible in climate debates” (WGCR 2010, 4). Gotelind Alber notes in the 2010 Women and Gender Constituency Report that in climate negotiations “women are still underrepresented in planning and decision-making at all levels” (2), and Sandra Freitas of the Women’s Environment and Development Organization calls women’s lack of participation obvious (WEDO 2010, 1). Alber, who introduced the 2010 Report to the UN Framework Convention, notes that in contrast to other international treaties, the UN Framework Convention and Kyoto Protocol do not identify women as a vulnerable group or as crucial actors in mitigation and adaptation efforts (WGCR 2010). Freitas notes further that where women are not represented in decision-making capacities, their needs are often left unnoticed or unmet in both national and local government development planning (WEDO 2010, 1). Neglect of women’s needs in the global South is increasingly disturbing as the feminization of poverty and the exacerbating impacts of environmental degradation mean that these women are especially vulnerable in the face of failure to reach international agreement on how to respond to climate change. As situations like that of women subsistence farmers in northeast Ghana worsen, the necessity increases to identify and respond to their needs.

Yianna Lambrou and Grazia Piana attribute the absence and slow uptake of gendered analysis to two emphases that preclude insight as to the relevance of gender (Lambrou and Piana 2006). The first is emphasis on scientific and technological measures rather than so-called “soft” policies concerning behavior and social variances that would immediately introduce factors like gender. In the research context of northeast Ghana, Ann Whitehead showed, based on data collected in 1975 and 1989 on cyclical climate variance, that adaptation is

doubly challenged because the economic context is both highly unpredictable and rigidly constraining (Whitehead 2002). More recent research in Ghana addressing climate change highlights the necessity for understanding social, economic, and institutional challenges to adaptation strategies (Westerhoff and Smit 2009). So there is certainly a need to go beyond technical, scientific issues and include social analysis in formulating functional responses to climate change. Moreover, feminist critics have long established gender bias and exclusion in the history, ideology, and practice of science (cf. Harding 1998), so Lambrou and Piana's analysis is cause for concern that international climate change discourse is, whether consciously or unwittingly, re-inscribing gender bias through favoring approaches that emphasize technical, science- and technology-based solutions.

Their second explanation for gender-blindness in climate policy discourse is the focus on mitigation rather than adaptation, from which discussion of women's needs would follow in a straightforward way. There was, however, some progress in 2010 with respect to adaptation. The Adaptation Fund was established at the Marrakesh Conference of Parties in 2001 in order to finance developing countries' adaptation initiatives, but was not formally adopted until the 2007 Conference in Bali. The fund is financed by a 2% share of Certified Emission Reductions issued for any project implemented under the Clean Development Mechanism of the Kyoto Protocol and financial contributions committed by UN member states. The first significant contribution came only in April 2010, however, when Spain gave 45 million Euros (~60 million USD). In November 2010, a memorandum of understanding was signed to give the Adaptation Fund Board legal status and a home in Germany, and the board had its twelfth meeting in December immediately following the sixteenth Conference of Parties in Cancun.

Yet at an open meeting during the Conference of Parties, arguments from a female delegate representing the Philippines about the need for proposed workshops to assess distribution options for the fund failed to move forward the question of such workshops. The fund in fact approved two projects and five concepts to be discussed in the next round of approvals. One approved project is in Pakistan, the home country of the board's chair. The board has sixteen members and sixteen alternates whose terms end in 2011. One member and three alternates are female. There are thus multiple concerns that can be raised about the Adaptation Fund, including doubts about transparency and openness, but also the radical under-representation of women on the board as well as failure to assess and include gender in its analysis and planning.

This is gender discrimination, which was formally noted as a violation of human rights at the 1993 World Conference on Human Rights in Vienna. It has been long established that not accounting for gender in development projects can lead to their failure and the exacerbation of poverty rather than its

relief (Eade and Williams 1994, 65). Increasing cash-crop production, for example, often displaces women subsistence farmers from land—Gross Domestic Product rises in what appears to be economic improvement, but the lived experience of poverty is actually worsened in ways that are particularly harmful to women. Hence Oxfam notes that “gender equity is at the heart of development” (70) if it is to be successful.

The UN, in recognition of the necessity for proactive attention to women’s needs, has established the Division for the Advancement of Women, the Committee on the Elimination of Discrimination Against Women, and the International Research and Training Institute for the Advancement of Women. Gender has been further mainstreamed through its policies and projects, including the Millennium Development Goals (MDGs) adopted in 2000 by 189 of the UN member states. These goals aim to encourage development by improving social and economic conditions in the world’s poorest countries. They specifically include promoting gender equality and improving maternal health, but the need to account for gender is also recognized in the goals of eradicating poverty and hunger, achieving universal primary education, reducing child mortality, combating HIV/AIDS and other diseases, ensuring environmental sustainability, and establishing a global partnership for development. The UN clearly understands the importance of gendered analysis and the need for identification and accommodation of women’s needs in its policies and activities generally, yet not in its approaches to climate change.

Lambrou and Piana’s analysis may be correct, however, that the relevance of gender is more obvious when it comes to adaptation. In fact, the recent developments detailed above that move the Adaptation Fund forward, though clearly exhibiting what may be hoped to be growing pains rather than persistent, ineradicable challenges, have paralleled some progress concerning gender. The UN Framework Convention granted provisional status to the Women and Gender Constituency in November 2009. The constituency consists of eight non-governmental organizations, and this status gives them official voice at Conferences of Parties. They do not actively negotiate like delegates representing member states of the UN, but they were invited to make a brief comment at the Closing of the Cancun negotiations, for example, along with other groups representative of various stakeholder constituencies. The constituency is inclusive in its practices and encourages all who wish to be part of the discussion of gender to contribute. A women’s caucus has thus been established that is broadly representative of women’s interests. During Cancun, the caucus met for an hour every morning to identify issues and strategize responses. It has good representation for the global South and North, and favors joint actions with other organizations, for example, the Indigenous Peoples’ Network.

Priorities of the constituency, beyond mitigation and adaptation, include sustainability issues beyond the carbon focus that dominates climate discourse, participation of diverse voices in climate policy and responses, and MDGs with particular attention to sustainable development and poverty eradication (WGCR 2010, 17). The participation priority is of course centered on inclusion of women's voices, and the overall aim of the constituency is to "ensure the representation of women's voices, experiences, needs and capacities" (2) in climate negotiations. The Hairou Commission, one of the eight non-governmental organizations that make up the constituency, explicitly aims to "formalize the involvement of grassroots women" (7). Methods for achieving the constituency's aim of representation include advising delegates and ongoing appraisal of negotiation documents.

In 2009 at Copenhagen, the UN Framework Convention's Ad hoc Working Group on Long-Term Cooperative Action's draft decisions contained nine references to gender, which indicates progress on gender despite failure of the talks to produce functional agreement. In 2010, as this Working Group prepared for Cancun, their negotiation documents began with no references to gender, but by June contained forty. In October 2009, a UN Framework Convention technical workshop in Bangkok had 35% participation by women, though in the previous history of the convention, women's participation at such events had never previously broken 30%. There has also been an increase in the number of contact groups chaired by women at Conferences of Parties and high attendance by women at gender-themed side events. Formal recognition of the constituency in 2010 thus represents culmination of ongoing efforts by women's groups to bring their voices to climate negotiations. Whether these developments indicate that optimism is warranted concerning the capacity of international negotiators to understand and respond to women's needs with respect to climate change remains to be seen. Alber warns that even when introduced to the discourse successfully, gender equality and justice are often seen as "add-ons," and are easily lost in the bustling complexity of negotiation as principles turn into action (WGCR 2010).

Several things are clear, however. First, women themselves experience and understand women's vulnerability to climate change. Second, women in developing countries in particular understand connections among gender, poverty, and environment, and identify climate change impacts already in their own experience while also anticipating further harms. Further, women from throughout the globe are acting on this knowledge by insisting that policy- and decision-makers at all levels can no longer exclude gender from climate negotiations. This paper is intended to raise awareness beyond the policy context in order to promote understanding of women's situation in the global South: women in developing countries are especially and immediately

threatened by climate change impacts, but also have knowledge to contribute to adaptation efforts if only their voices can be heard.

NOTES

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1. Names have been changed to protect interviewees' privacy.

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