

**Asia Security Initiative Policy Series
Working Paper No. 10
January 2011**

**The Gender and Climate Debate:
More of the Same or
New Pathways of Thinking and Doing?**

Bernadette P. Resurreccion
Associate Professor
Gender and Development Studies
School of Environment, Resources and Development
Asian Institute of Technology
Thailand

Abstract

Feminist and development advocates have recently taken international agreement framers to task for the paucity of gender perspectives when defining climate change agendas, a gap which has led to the emergence of 'gender and climate change' discourses. This paper aims to contribute to this growing concern with gender and climate change adaptation by: (i) briefly reviewing international agreements and advocacy literature in order to understand the conceptual antecedents underlying gender and climate change discourses and their respective deficits; and (ii) engaging with past and current theorisations on gender, adaptation and resilience which are relevant to a better understanding of the linkages among gender, climate change adaptation and human security. This paper argues that 'gender' and 'vulnerability' have to be viewed as complex social and human security processes that defy current simplifications based on fixed and essentialised traits and properties of women that characterised the earlier women, environment and development (WED) discourse. Current gender and climate change discussions often build on this earlier strand. An understanding of the complex linkages and processes of gendering and vulnerability is applied to recent climate change adaptation studies in Cambodia and Vietnam.

Acknowledgements

The author wishes to thank Jummai Yila, Norm Sina and Sreng Sopheap, post-graduate students in Gender and Development Studies, Asian Institute of Technology, for excerpts from their excellent and ongoing work on gender and climate change issues.

This Policy Series presents papers in a preliminary form and serves to stimulate comment and discussion. The views expressed are entirely the author's own and not that of the RSIS Centre for Non-Traditional Security (NTS) Studies. The paper is the result of research conducted under the Asia Security Initiative programme on internal challenges supported by the MacArthur Foundation. Visit www.asicluster3.com to find out more about this initiative. More information on the work of the RSIS Centre for NTS Studies can be found at www.rsis.edu.sg/nts.

Recommended Citation:

Resurreccion, Bernadette P., 2011, *The Gender and Climate Debate: More of the Same or New Pathways of Thinking and Doing?*, Asia Security Initiative Policy Series No. 10, Singapore: RSIS Centre for Non-Traditional Security (NTS) Studies.

Biography

Bernadette P. Resurreccion is Associate Professor of Gender and Development Studies at the Asian Institute of Technology in Thailand, where she is engaged in teaching and research on gender, natural resource management and climate change, and urban-rural linkages in livelihoods and migration. She has researched these themes in the Philippines, Thailand, Vietnam and Cambodia. Apart from various journal papers on these themes, she has co-edited *Gender and Natural Resource Management: Livelihoods, Mobility and Interventions* (Earthscan and the International Development Research Centre, 2008) and *Water Rights and Social Justice in the Mekong Region* (Earthscan, 2011).

Introduction

Controversial international deliberations on climate change have drawn huge interest globally, as leaders hammer out agreements on emissions targets, adaptation programmes and financing as well as carbon trade scenarios. In recent years, scholars and advocates of 'climate justice' have shifted their focus from diagnosing impacts to evaluating the processes, conditions and characteristics of systems that exacerbate vulnerability and inhibit adaptive response (Eakin and Luers, 2006). This is a welcome development since it opens up the debate to other perspectives and disciplines; however, some voices are more muted than others in this ongoing debate.

Among these voices are feminist and development advocates, who have taken international agreement framers to task for the paucity of gender perspectives when defining climate change agendas. They struggle to draw attention to the importance of gender-responsiveness in efforts to mitigate growing global warming, as well as in the adaptation processes and prospects of people and communities. These deliberations become more crucial today as more planners and scholars are collectively convinced of the need to sustain and ensure human security in the face of threats and dislocations due to climate change effects.

This paper aims to contribute to this growing concern with gender and climate change adaptation by: (i) briefly reviewing international agreements and advocacy literature in order to understand the conceptual antecedents underlying gender and climate change discourses and their respective deficits; and (ii) engaging with past and current theorisations on gender, adaptation and resilience which are relevant to a better understanding of linkages among gender, climate change adaptation and human security, and applying these to recent studies in Cambodia and Vietnam.

The 'Women and Environment' Lobby in International Agreements

The UN Conference on Environment and Development (UNCED), also known as the Earth Summit, held in Rio de Janeiro in 1992, offers convincing evidence of strong feminist presence in at least two international agreements on environmental degradation and efforts to reduce and mitigate its effects on developing regions. Four international agreements grew out of the 1992 Earth Summit: Agenda 21 (1992), the UN Convention on Biological Diversity (1993), the UN Convention to Combat Desertification (1994) and the UN Framework Convention on Climate Change (UNFCCC) (1994). Of the four, only Agenda 21 and the UN Convention on Biological Diversity contain sections and passages that recognise the gender-specific effects of environmental change and ways to reduce them. In contrast, the Beijing Platform for Action 1995 from the UN Fourth World Conference on Women contains a distinct section on 'Women and Environment' (Section K).

The UNFCCC was one of two instruments opened for signature at the 1992 UNCED in Rio de Janeiro.¹ In March 1994, with 166 ratifications from the original 188 signatories, the UNFCCC came into legal force, establishing the Conference of the Parties (COP) and the UNFCCC Secretariat. The UNFCCC has since overseen an international process of climate

¹ The other instrument was the UN Convention on Biological Diversity (CBD). While both were open for signature at UNCED, they were negotiated prior to the summit in separate intergovernmental negotiating processes.

change negotiations and committed parties to a universal objective of reducing emissions, with the benchmark set at 1990 emissions levels. Subsequent decisions under the UNFCCC, including the 1997 Kyoto Protocol, did not articulate any concern for gender issues, except for the need to include gender experts in the National Adaptation Programmes of Action (NAPAs) in least developed countries (LDCs). Efforts to bring in a gender/feminist agenda into the COP meetings mostly fell by the wayside. The first stirrings of a gender coalition were felt only during the 2005 COP11 in Montreal.

The low visibility of gender advocacy groups in the climate debate was in large part due to the global and transboundary nature of the problems identified by the climate change actors. These require international and multi-level approaches, differing somewhat from post-UNCED discussions which proposed community-based and localised responses to environmental degradation, a scale of intervention where gender issues and advocacies gained momentum (Leach, 2007). On the continuing absence of a visible gender advocacy in the recent decade, Skutsch (2002) points out that there was a need to coalesce around universal issues ‘and not divert attention to gender aspects’ given resource limitations and the crisis moment ignited by the uncooperative behaviour of the US during the signing of the Kyoto Protocol. Additionally, the Intergovernmental Panel on Climate Change (IPCC), the scientific bedrock of the UNFCCC which was founded in 1988 by the UN Environment Programme (UNEP) and the World Meteorological Organization (WMO), does not discuss the gender dimensions of climate change but has for decades devoted its discussions to the technical aspects of climate changes such as mitigation measures and scales of impact through modelling approaches (Terry, 2009). A recent scoping study on climate change adaptation confirms this point: ‘Adaptation is understood as primarily a technical means with which to reduce and minimize the impact of climate change rather than as a complex set of responses to existing climatic and non-climatic factors that contribute to people’s vulnerability’ (Resurreccion et al., 2008:19). However, in the IPCC’s (2007) *4th Assessment Report*, Chapter 17 on Adaptation, gender was discussed as a differentiating social category. It was only during the 2007 COP13 in Bali, Indonesia, that women’s global network organisations more visibly emerged.² GenderCC-Women for Climate Justice was formally constituted to put forward a definitive gender/feminist agenda at UNFCCC negotiations and meetings.³ The climate justice discourse emerged from these new formations, drawing from earlier concerns on the critical gaps between North and South in terms of energy consumption patterns, payments for adaptation programmes in view of earlier huge investments into mitigation efforts, as well as the risky trade-offs between new initiatives aimed at carbon sequestration (such as reduced emissions from deforestation and forest degradation, or REDD) and sustaining local livelihoods of communities in the face of climate changes.

² These include organisations such as the Women’s Environment & Development Organization (WEDO), International Network on Gender and Sustainable Energy (ENERGIA), gender advocates within the International Union for the Conservation of Nature (IUCN) and the Food and Agriculture Organization of the United Nations (FAO).

³ Villagrasa (2002) however notes that women were centrally active in the negotiations for the signing of the Kyoto Protocol, but it was unclear whether there was a clear feminist agenda during the negotiations or side events thereof. Delegates celebrated the adoption of the Protocol in 1997.

The gender and climate change justice discourse at these initial international events revolved around a central feminine subject – that is, the poor rural woman of the South – who is negatively affected by climate change. A running logic permeates the discussions: climate change is most adversely felt by vulnerable people in the climate hotspots of the South, and chief among them are women, who constitute the larger percentage of the world's poorest. Awareness raising, marshalling evidence through collecting case studies on the impacts of climate change on women, and capacity building are some of the activities that build around this logic. This same thinking argues that women are powerful agents of change and that their full participation is critical to adaptation⁴ and mitigation policies and programmes, and hence, it is important that women and gender experts participate in all decisions related to climate change (GenderCC-Women for Climate Justice, 2007).

The discourse of women as chief victim-and-caretaker in climate change debates and programmes resonates with the women, environment and development (WED) thinking associated with 1990s global discussions on environmental degradation. WED was a corrective to earlier gender-blindness in global discussions, as it emphasised the relational perspectives of women and men, where experiences of the environment are differentiated by gender through the materially distinct daily work activities and responsibilities of women and men. As a result, it was assumed that women and men hold gender-specific interests in natural resource management through distinctive roles, responsibilities and knowledge (Elmhirst and Resurreccion, 2008). Women were also recognised as a natural constituency for environmental 'care' programmes, especially since it was fundamentally assumed that their livelihoods had been disrupted by environmental stresses.

Scholars later expressed their disquiet with WED for its essentialist views and simplifications, which led to the following: the positing of the idea of women as a natural constituency for environmental projects; the tendency to add 'environment' to women's long list of caring roles (Leach, 1992; Jackson, 1993); universalist assumptions on women's environmental roles that do not match ground realities and their intersecting class, ethnic or age-related subjectivities (Rao, 1991); the absence of men in analyses, when inclusion of male as well as female perspectives can delineate issues of power more clearly or draw attention to other subjects of vulnerability; and the special emphasis placed on women's knowledge of the environment without investigating whether this emanates from a position of subordinate obligation and power configurations (Jewitt, 2002).

Despite criticism levelled at the theoretical premises, simplifications and policy applications of WED in the 1990s, it did re-inscribe the women-environment linkage into contemporary climate change debates. Moreover, a more critical look at these debates reveal that summoning simplifications is sometimes useful for political projects such as feminism to carve the space it sorely needs in a discursive arena that thrives on the homogenisation of its subjects and technical fixes to ameliorate damage from climate stresses.

From Simplifications to Complexity: Gender, Adaptation, Vulnerability and Resilience

This paper also aims to argue that the emerging scholarship and practice in the so-called terrain of 'gender and climate change' need to draw from earlier feminist theorising and its critical perspectives on mainstream development and climate change literature. There is a

⁴ This is the basis of principle 20 of the 1992 Rio Declaration.

tendency for some to ‘throw out the baby with the bath water’, and develop a discrete conceptual framework that discards feminist theoretical antecedents and ‘inserts’ gender into climate change scholarship. This section serves as a corrective to this tendency. I begin by describing how WED remains influential in gender and climate change discussions and thereafter explore more promising feminist pathways to understanding adaptation, vulnerability and resilience.

Persistence of WED in gender and climate adaptation discourses

The scholarly literature on gender and climate change is growing, with many papers putting forth arguments that share similarities with WED ideas that were popular in the 1980s and 1990s. This appears to be the most familiar stream. One can sense this similarity in, for instance, a fairly recent paper focusing on the gender analysis of climate change that principally invokes a 1985 Centre for Science and Environment, New Delhi (CSE) document stating that once more it is the poor women of the South who are the hardest hit:

Probably no other group is more affected by environmental destruction than poor village women. Every dawn brings with it a long march in search of fuel, fodder and water ... Caught between poverty and environmental destruction, poor rural women in India could well be reaching the limits of physical endurance. (Dankelman, 2002:23)

Denton (2002) remarks that threats resulting from global warming have failed to draw attention to the importance of placing women at the centre. She justifies the need for a centred view of women in climate change discourses in this way: ‘poor women are generally on the receiving end of the effects of increasing environmental degradation and depletion of natural resources, because of their involvement in, and reliance on, livelihoods activities which depend directly on the natural environment’ (Denton, 2002). The *Human Development Report (HDR) 2007–2008* affirms that the disadvantages faced by women, who have historically had limited access to resources, as well as restricted rights and little voice in decision-making, make them extremely vulnerable to climate change.

Adaptation refers to actions that people take in response to, or in anticipation of, projected or actual changes in climate to adjust to and cope with impacts and moderate damages, and take advantage of opportunities (IPCC, 2007). The capacity to adapt is viewed as paramount in women’s responses to climate change effects. This has in turn led to research strands which, in celebrating women’s agency in adapting to climate change, echo earlier WED studies. The following are striking examples:

- *Adaptation strategies:* Scholars report that women have demonstrated capability in mobilising the community in the different phases of a disaster risk cycle (Guha-Sapir, 1997; Enarson, 2001; Yonder et al., 2005) and thus show visible signs of adapting to climate changes in the long run. Speranza (2006) notes that, among agro-pastoralists in both Kenya and Tanzania, rural actors, ‘especially women, organise themselves in Self Help Financial Groups (SHFGs) to increase their financial capacity’ in order to find alternatives to enable them to adjust to the impacts of climate change and climate variability on their household and livelihoods. Their activities included intercropping, planting crops to coincide with the rains or even forfeiting planting for the season for the purpose of reducing crop loss (Speranza et al., 2006). In Zaheerabad, dalit women who form the

lowest rung of India's stratified society, demonstrated adaptation to climate change by following a system of interspersing crops that do not need extra water, chemical inputs or pesticides, an initiative facilitated through the formation of local self-help groups that convene regularly. The women grow as many as 19 types of indigenous crops to an acre, on arid, degraded lands (Acharya, 2009).

- *Knowledge*: Advocates have made the case that women have greater clarity concerning the risks in their environment. Women develop broad knowledge and experiences regarding their environment as a result of the responsibilities that they assume within their families and in their communities, and they are constantly evaluating and adjusting in response to changing environmental and social conditions (Ariyabandu, 2004). Furthermore, their high adaptive knowledge plunges them into action when a community is at risk (Enarson and Fordham, 2001). Around 5,000 women spread across 75 villages in the arid, interior parts of southern India are now practising chemical-free, non-irrigated, organic agriculture as one method of combating global warming (Acharya, 2009).

The danger with such 'women only' assertions when translated into policy is that they naturalise and reinforce inequitable gender divisions of labour, thus inadvertently increasing women's workloads in programmes aimed at empowering them. In short, they add 'environment' and 'climate adaptation/mitigation' to women's already long list of caring roles.

Going beyond WED and 'women only': Re-engendering adaptation and vulnerability

While 'women' as the sole subject still persists in the growing gender and climate change literature, there are others with a different perspective – they point out that the social and cultural norms that dynamically shape the gender divisions of labour, labour mobility and decision-making patterns in households and communities may create situations where men may also suffer from gender-specific vulnerability due to their relatively limited access to resources and the resulting poverty (Terry, 2009; BRIDGE, 2008; Lambrou and Piana, 2006). This stream calls for a more critical and nuanced understanding of the inequalities existing between and among women and men, and the ways that climate change could exacerbate the effects of these inequalities (BRIDGE, 2008). Demetriades and Esplen (2008) also encourage more context-specific research drawing on local realities and adaptation strategies and they plead for an understanding of the complex relational nature of gendered power. Cleaver (2000) earlier cautioned against essentialist assumptions about men's and women's roles in natural resource management. While culturally defined gender roles in responses to climate stresses do exist, they may be more flexible than at first appears and subject to negotiation and change that go beyond fixed definitions of 'women' and 'men'.

Nightingale (2009) brings the level of debate a step further, suggesting that climate adaptation, being a concept drawn from the ecological sciences, is fundamentally an individualised concept referring to the ability of human societies and ecological systems to cope with climate variation. This ability is premised on the notion of the 'adaptive capacity' of human and ecological systems, in which people's adaptive capacities are determined by their socioeconomic characteristics. For instance, the IPCC states that the determinants of adaptive capacity are directly correlated with measures of economic development (gross domestic product, or GDP, per capita) (IPCC, 2007). Developing countries are also recognised to be more vulnerable to climate change because of their 'lack of institutional

capacity' among other things (this is usually interpreted as a lack of capacity of government) (IPCC, 2007). This reasoning connects well with the logic behind the idea that women from developing and marginal groups and regions are the hardest hit by climate stresses, and that in their hands rests the challenge of adapting to and mitigating the effects of climate change. In this view, women therefore *possess* the skills for adaptation; they are the ones with enormous stakes in ensuring the survival of their livelihoods and households. The gender and disaster literature, for instance, has identified several vulnerability characteristics of women to sensitise disaster risk managers so as to mitigate these characteristics (Enarson, 1998; Bradshaw, 2004).

Nightingale (2009) departs from a focus on individual characteristics, arguing that attention should instead shift to the kinds of climate-related hardships that will result for specific kinds of people (specific classes and ethnic groups of women and men) due to their different economic and political positions and uneven power relations in society. She remarks that:

the biggest impact of climate change will be on differentiation within human societies, closely linked to resource availability. This would mean increases in inequality based on gender, class, caste, geography and ethnicity, which are some of the key axes of difference by which resources are currently distributed. (Nightingale, 2009:85).

The adaptive capacity of farmers is more than just their ability and knowledge to cultivate and select crops that are drought-resistant as they are basically used to coping with climate variations. This, says Nightingale, is not the crucial element to consider. Instead, the farmers' adaptive capacity will largely depend on whether women and men are equally able to gain access to and control over household and community decision-making processes in managing threatened or scarce resources as a result of climate stresses. A lack of focus on social differentiation appears to be the blind spot in much of the literature on climate adaptation but has nevertheless had some resonance in earlier conceptualisations of vulnerability in the disaster literature.

Similarly preoccupied with people's characteristics, Wisner et al. (2007:4,11) view vulnerability in terms of 'the characteristics of a person or group and their situation influencing their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard'. This definition considers people's characteristics as central to the shaping of their vulnerability.

In contrast, others view vulnerability as a process rather than a set of sometimes assumed fixed characteristics. For instance, in the hazards literature, Blaikie et al. (1994) state that vulnerability is a key concept in predicting and understanding the differentiated impacts of various disasters on groups in a society, as it takes into account people and the differences among them, affirming that people's circumstances change and can be changed by a disaster. Additionally, Enarson (1998) warns us that vulnerability is not an intrinsic characteristic, or does not derive from a single factor such as 'being a woman', but is indicative of historically and culturally specific patterns of practices, processes and power relations that render some groups or persons more disadvantaged than others. Social and gender processes generate unequal exposure to risk causing some people to be more prone to disaster than others. These inequalities are a function of power relations that exist in society, which result in an individual, household or community being vulnerable to disasters (Helmer and Hilhorst, 2006). Vulnerability is therefore a dynamic condition shaped by existing and emerging inequities in resource distribution and access, the control individuals

are able to exert over choices and opportunities, and historical patterns of social domination and marginalisation (Eakin and Luers, 2006), and not solely a set of intrinsic properties that individuals or groups possess. This is a view I concur with and, in particular, I consider vulnerability as intrinsically a differentiating process (Hilhorst and Bankoff, 2004). Through such framing, we come to understand how people come to be gendered, disciplined and regulated as women or men – and as a result, differentially vulnerable – under varying conditions of climate stresses.

In addition to understanding vulnerability as process-oriented, Nightingale (2009) shifts and complicates the conceptualisation of gender: from a set of fixed binary roles assigned to women and men, to viewing resource management and indeed, climate adaptation, as processes where gender and social inequalities are contested, changed and reinforced. It is through these processes that the social meanings of the various social categories of difference – man, woman, ethnic group member, etc. – are played out and that power is actually produced and performed (Nightingale, 2009:86). In addressing these, it is important to guard against the gender-essentialising tendencies presaged by Scott (1988) when she remarked that invoking (essentialised) social difference is an act imbued with power. Cornwall (2007) affirms this view as she laments the ‘gross essentialism’ that has stalked the gender and development industry for decades, and thus suggests that it may be more instructive to focus on and transform social practices that constitute gender inequality rather than assume fixed, assigned and perpetually oppositional characteristics for women and men. These contingent and unpredictable gender and social dynamics and processes within society-nature interactions are often lost in the climate and gender discussions, which tend to oversimplify human behaviour.

What this section has underscored is that adaptation and vulnerability are closely interlocked, where vulnerabilities stem from social and gender inequalities that materialise when people actually attempt to adapt to a changing climate through various immediate and long-term strategies. People – or women – are not essentially vulnerable nor can they be attributed distinct or fixed properties of vulnerability; instead, they become vulnerable as they adapt to changing conditions because, in doing so, they summon social biases and discriminatory institutional practices that render them less able to adequately or fully adapt in concrete ways.⁵ These practices are the elements worth mitigating, rather than creating community-based programmes and advocacies foisting responsibilities on women (only), tapping an imagined special and distinct agency, and thus passing on to them the additional burden of adapting to changed conditions resulting from climate change in the tradition of earlier WED projects. In a very real sense, planned programmes should enable women and men to respond adequately to the gradual and short-term effects of climate change, but in ways that do not increase inequalities in their workloads, stoke discriminatory attitudes and/or unevenly distribute risks and costs.

Resilience and its conceptual mismatches with gender and power

Resilience thinking traces its origins to ecosystems research, which examines human intervention as a factor that reduces ecosystem resilience and biological diversity. Resilience is also considered a loose antonym to vulnerability since it refers to the increased capacity to

⁵ Early in the climate debate, O’Riordan and Jordan (1999) posited that climate change is a context through which institutions employ ‘social devices’ such as creating and interpreting scientific knowledge and selecting politically tolerable adaptation strategies.

cope with disturbance and stresses (Adger, 2000). I will briefly discuss two streams in current thinking on resilience and their implications for gender.

First, the concept of resilience has in recent years been made to cross the disciplinary divide but its understandings retain much of its ecological underpinnings. Resilience is widely defined as ‘the capacity of a system to absorb disturbance and re-organise while undergoing change so as to still retain essentially the same function, structure, identity and feedbacks’ (Walker and Salt, 2006). This definition shares similarities with social resilience, which is broadly defined as the capacity of a social entity to ‘bounce back’ or respond positively to adversity. More specifically, social resilience is understood as having three properties: resistance, recovery and creativity (Maguire and Hagan, 2007:16–17). Resistance refers to a community’s efforts to withstand stresses and their consequences, whereas recovery is linked to a community’s ability to ‘pull through’ a disaster or shock, and its ability to bounce back to pre-stress levels of functioning or its ‘initial point of equilibrium’. When people learn from the experience and adapt to new circumstances with higher levels of functioning, this is known as attaining a level of ‘creativity’, which also means a gain in resilience to future stresses (Maguire and Hagan, 2007:16–17).

The problem with applying this particular view of resilience to gender and power is that there seems to be an implicit desire for communities or social entities to, in Maguire and Hagan’s (2007) terms, return to ‘normal’ and resume ‘stable functioning’ after the experience of turbulence and stresses. This may deflect attention from the institutions in society that largely (and normally) maintain uneven and unequal allocations of resources and entitlements to women or to certain types of men, which is part of their ‘normal functioning’. Normal functioning may mean reproducing earlier and pre-existing forms of gender-based vulnerabilities and inequalities. The resilience of some may therefore be more than others in a given social and historical context. Thus we return to the need for a differential analysis of resilience, in the same manner that adaptive capacities and vulnerabilities are differentiated and deeply embedded in social power contexts. The challenge, therefore, is to seek means and ways to democratise and enable equal adaptive capacities and resilience.

The second stream departs from the usual view of resilience as a bounce back to normal functioning. Adger et al. (2002:358) argue that, in their view of social resilience, communities are changing constantly, and their capacity to deal with external shocks may be under question:

When communities are resilient – with a resilient and accessible resource base and a dynamic range of viable livelihoods and responsive institutions – they may be able to absorb these shocks, and even respond positively to them. However, when communities are less resilient, perhaps because their resource base is fragile or inaccessible, their livelihoods are insecure, or their community institutions are rigid, significant upheaval may occur. This potentially leads to the disintegration of social capital, the erosion of resources, and the absence of viable livelihood options.

This literature attends to the important role of institutions in enabling social resilience and adaptation. Agrawal and Perrin (2009) examine the vulnerability and adaptation assessments of NAPAs contained in the UNFCCC database. In their study, they argue that political (state), private (market) and civic (civil society) institutions potentially enable

adaptation.⁶ Their findings show that combined civic and political institutions play a crucial enabling role in adaptation strategies in most cases. Overall, the extent to which people are vulnerable will be shaped by the interplay between people's livelihood strategies and the institutions, policies, markets and local practices in which people operate, which thus suggest that vulnerability and adaptive capacities are largely contingent. These studies by Adger et al. (2002) and Agrawal and Perrin (2009), while thoughtfully instructive on resilience, sidestep power and differentiation in institutional practices and thus overlook gender-specific constraints to social resilience and adaptation.

Food-conflict-livelihood insecurity: Towards an integrative gender perspective of adaptation and resilience

Social vulnerability is the exposure of groups of people or individuals to stress as a result of the impacts of climate change. Stress in the social sense encompasses disruption to groups' or individuals' livelihoods and forced adaptation to the changing physical environment. Social vulnerability in general encompasses disruption to livelihoods and loss of security. (Adger, 1996:7).

John Ashton, United Kingdom Foreign Secretary's Special Representative for Climate Change, once remarked, 'There is every reason to believe that as the 21st century unfolds, the security story will be bound together by climate change ... climate change is a security issue because if we don't deal with it, people will die and states will fail' (cited in WEDO, 2008:6). On 17 April 2007, the UN Security Council took up the issue of climate change for the first time in history, deeming it an important challenge for human security. There was concern that migration on an unprecedented scale will occur due to flooding, disease and famine. Drought and crop failures could intensify the competition for food, water and energy and other resources. Sea level rise will cause massive displacements that will also contribute to conflicts (WEDO, 2008:6).⁷

The human security discourse has deflected attention from the nation state and its traditional security focus on conflicts, and instead more pointedly concentrates on human individuals as potential victims. The discourse has also gone beyond viewing physical violence as the only relevant vector or threat, and now considers degrees of 'felt disquiet' (Gasper, 2005). The concept of human security now encompasses economic, health and environmental concerns as well. As the UN Development Programme (UNDP) notes, it is an 'integrative' as opposed to merely a 'defensive' concept, and includes the security of individuals and communities as well as territories and states. Thus human security is more broadly, and in an integrative way, concerned that human beings (i) are relatively free from disease; (ii) have access to environmental resources to enable sustainable livelihoods; (iii) are secure from physical violence and threats; (iv) experience cultural integrity; (v) are protected in terms of their basic human rights and freedoms; (vi) are assured of basic income; and (vii) have physical and economic access to food (Canadian Global Change Program, n.d.).

⁶ Civil society institutions include labour exchanges, collective gatherings, membership organisations and cooperatives.

⁷ These claims are highly contested, and there is growing concern about the increasing securitisation of climate-induced migration and displacements (Tacoli, 2009; Hartmann, 2007; Black et al., 2008).

The Intersection of Gender, Climate Change and Human Security: The Cases of Cambodia and Vietnam

Gender and climate change intersect with human security concerns especially since the threats of climate change have differentiated effects on women, men, ethnic groups, castes, nationalities and classes, and therefore efforts to mitigate these uneven impacts have to be adequately addressed. In what follows, I will briefly discuss studies on climate change in the Lower Mekong Basin – specifically focusing on Cambodia and Vietnam – which could demonstrate the workings of and the linkages between gender, climate and human security.

In the Lower Mekong Basin which has more than 55 million people, the river systems and coastal areas are vital sources of food and livelihoods,⁸ and the Mekong Delta in Vietnam is a main rice bowl for the region. The Delta region, which is the area of highest human density, is especially vulnerable to climate impacts as it is affected by both changes in upstream flows due to drought and heavy rainfall, as well as coastal storms and sea level rise. Changes in hydrological flow and flooding will affect crop production, fisheries and human health. Projected sea level rise for 2030 would expose 45 per cent of the Delta's land area to extreme salinisation and crop damage through flooding, with forecasts of a fall in rice production by 9 per cent that will affect not only local inhabitants but also the wider population in the region dependent on this staple food source. Degradation of wetland areas, in part due to land conversion, is also affecting the regulation of flood plains, and the regulation of waste from increasing urban areas and fish spawning habitats. Compounding the effects of increased warming and irregular rainfall on basin hydrology is the development of hydropower infrastructure in China, Lao PDR and Vietnam to meet the increasing energy needs in the region. In addition, longer dry spells and drought in the region are intensifying competition for water use for irrigation and domestic supply both among and within countries in the region. The severity of drought and flooding in rain-fed areas is resulting in crop failures, which particularly affects poor farmers (Resurreccion et al., 2008). All countries in the Mekong region will be affected by increased changes in climate; studies done in Cambodia and Vietnam show that these changes are already taking place and reveal gender-specific impacts.

Cambodia

Subsistence farmers are experiencing longer dry spells in Cambodia. Norm's 2009 study focusing on Battambang Province reveals that the province's average rainfall has been irregular in the last 27 years, based on average yearly rainfall data from 1982 to 2008. The last heavy rainfall was in 1999 (1,500 mm). Prior to and after that year, rainfall fell to low levels of 1,000 to 1,200 mm, with the lowest level recorded in 2004. The average maximum temperature in the same period has been on the rise, from a benchmark of 32°C in 1982 to an average of 34–35°C in recent years, especially in 2004 and 2006.

Farmers in Kors Krolar district, for instance, said that they were experiencing hotter days both during the dry and rainy seasons. The rising temperature and decreased rainfall had a tremendous impact on rain-fed rice cultivation in the area. Farmers no longer transplanted seedlings from seedbeds as they did in the past when there was more regular rainfall. Instead, they turned to sowing seeds and harvesting them directly from the paddy fields in order to maximise the shorter period of rainfall that occurred irregularly between May and

⁸ The Lower Mekong Basin includes Thailand, Vietnam, Cambodia and Lao PDR.

October. In former times, they used to cultivate a second crop during the rainy season to ensure adequate rice supply as well as a slight surplus to sell in markets. This was no longer possible. To replace this activity and to redress shortfalls in their own households' rice supply, men more frequently ventured into the forests to cut trees, collect fuelwood for charcoal production, cut bamboo and collect non-timber forest products. Although they were reluctant to do so, in the face of climate variability, men largely bore the heavy responsibility of earning money to support their households. They took on other jobs such as driving motorcycle taxis and working as maize harvesters in neighbouring farms. Some temporarily migrated to Thailand to work as construction workers. Under the same conditions, women also worked as wage labourers, performing work such as clearing bush in the plantations of other villagers and planting maize for other landowners in the commune. In addition, they collected forest products such as vegetables and wild mushrooms as well as dug wild potatoes for household consumption. They also raised livestock at home, made rice wine and assisted their husbands in charcoal production.

Norm's study also indicated that some wives urged their husbands to log trees and sell them. Husbands were reluctant but realised there was little choice. Khmer men, while recognised as heads of their households, usually do not undertake trading activities. Nhe Houy, aged 36, who had 5 children ranging from 3 to 13 years old, recalled the tough times:

When my family had money shortage and no rice to eat and my husband did not go to work anywhere, I always pushed him to go and cut wood in the forest and then sell them to wood merchants. After I talked to him, he went to cut wood and sold them for about 30,000R to 40,000R (= USD7.50 to USD10) each time. With this money I bought rice for the children. (Norm, 2009)

Sons were also urged to go to the forest to cut trees for the timber market, and many of them had to drop out of school. A great number of young men abandoned school because they had to earn money to help their families due to crop failures on their parents' farms.

The drought was so severe in 2004 that the Battambang Provincial Rural Development Department was compelled to distribute water to affected residents. An officer of the department recalled that conflicts arose due in large part to the scarcity of water itself, but also because of inequitable distribution. Those who lived near water distribution stations received larger amounts. Also, those who knew and were close to the provincial department's water distributors were able to access information on distribution schedules before others and thus received water earlier and in larger amounts than the rest. Those who lived farther away and had no such relations received very little or no water at all.

A recent survey by Sreng (2010) in Ratanakiri Province reports that floods inundated villages both due to unusually heavy rainfall and allegedly unexpected water releases from the hydropower dam at the Lower Sesan River in September 2009. Among the respondents, women were chiefly responsible for 60 per cent of home-based businesses such as selling fruit, homemade cakes, noodle dishes, fried bananas and other cooked food. These women also collected non-timber forest products, largely wild vegetables. When the floods came, more male residents took on collection of non-timber forest products. After the flood, only 10 per cent of women respondents resumed collecting non-timber forest resources, whereas 18 per cent of male respondents admitted that they now pursued it more intensively, as it included logging activities as well. Women continued to obtain loans from relatives and

moneylenders to tide them over the crisis period of food scarcity and disruptions in farming and fishing livelihoods in which both women and men were formerly involved.

Vietnam

Vietnam has been cited in a study of 84 countries as being among those with the greatest potential number of adverse impacts due to global climate change, as sea level rise will affect land, population, economy and wealth, urban habitation, agriculture and wetlands (Dasgupta et al. cited in UN Vietnam, 2008). Seventy-four per cent of the country's population is concentrated along the coastal plains and river deltas, the areas which would be most affected by sea level rise (ICEM cited in UN Vietnam, 2009). Climate change and sea level rise could flood more areas, obstruct water drainage, intensify coastline erosion and salt water intrusion, adversely affect agricultural production and domestic water use, and create risks to coastal infrastructure, urban inhabitants and coastal communities. Increases in sea level and sea water temperature would have adverse effects on the coral reefs and mangrove forests which are vital to coastal aquaculture and fishery activities (MONRE/PEP/UNDP 2008 cited in UN Vietnam, 2009). With sea level rise, shrimp and crab farm livelihoods may be disrupted, and coastal fisheries may disappear since some species may move to the ocean depths due to rising water temperatures. This could result in the loss of marine resources essential to women's livelihoods, particularly their fishing and trading activities.

A recent desk review by UN Vietnam (2009) on gender and climate change argues that climate changes could build on and could exacerbate gender-differentiated and gender-unequal roles and obligations in fishery livelihoods. As there is still a paucity of studies on gender and climate change issues, they instead cite the following *ex ante* studies to build this argument (UN Vietnam, 2009:7, 9–10).

A study in Giao Xuan (Nam Dinh Province) shows all owners of fishponds and fish rearing areas are men while most hired workers are women. The study reports that when the government awarded aquaculture use rights to coastal mud flat areas to some residents, poor households which relied on these traditionally open access fishing areas were denied the source of their livelihood. As a result, women and girls from those poor households became domestic workers for richer families. Similarly, in Xuan Thuy, women, boys and girls have traditionally collected aquatic resources from mud flats and mangrove areas for household consumption to supplement their food supply. With women having limited or no access to the coastal mud flat areas due to lack of tenurial rights, this activity has diminished and households' food sources have been adversely affected.

In the coastal zones of the Mekong Delta, the intensification of rice and shrimp farming has significantly changed land uses: land for shrimp cultivation has increased rapidly, whereas the rice growing area has decreased significantly. As yields from shrimp cultivation dropped due perhaps to increased salt intrusion and market vagaries, shrimp farmers became bankrupt and lost essential assets such as land. Decreasing shrimp and fish catches, as well as rice harvests, also caused incomes of poor households to decline. With the intensification of rice and shrimp farming by those with essential productive farming assets, the number of the poor and landless farmers employed as hired labour in these enterprises has increased.

A later study was conducted in three rural communities in Vietnam by Oxfam and UN Vietnam (2009). Focus groups and individual interviews reveal that women and men responded to disasters caused by floods and fierce typhoons in alternately similar and

different ways. Furthermore, the similarities and differences were contingent on the gender norms that influence social behaviour as well the exigencies of a disaster and its disruptive effects in their communities. For instance, in disaster preparation for a flood, men ensured that paddy fields were made adequately resilient, women and men jointly decided on the early timing of harvests, and women prepared households through measures such as food and water stockpiling and moving belongings to elevated areas of their houses to keep them safe. Men strengthened houses and livestock shelters.

Immediately after the flood receded, both women and men cleared and restored paddy fields, irrigation systems and wells, although it could be observed that men cleared public areas while women had a larger role in ensuring the well-being of children and the elderly. After the disaster, both women and men rebuilt livelihoods and homes. Men tended to perform tasks needing more physical strength while women took care of the crops (for example, weeding and watering). More men than women migrated seasonally, particularly after the floods receded (picking coffee, for example), but many came back for cropping and also for repairs. The women who migrated went to more remote places and hardly ever returned (Oxfam and UN Vietnam, 2009:31).

Conclusion

We learn from the Cambodian and Vietnamese cases that gender plays a central role in ascertaining outcomes of climate change; these outcomes will not be the same for women and men. Women participate in most production activities in fishery and farm communities but they have less access to and control over resources – land, capital, information, skills – which they depend on for food and incomes. This situation may be further worsened by climate change impacts, leading to lower incomes, increased workloads and hardships for poorer women, thus increasing their vulnerability and low social position.

The Vietnamese cases indicate that climate change is not a neutral process as posited by earlier scholars like Blaikie et al. (1994) as it has impacts on situations that are in the first place often mired in social inequalities. These cases support the argument that if women are already disadvantaged in terms of resource access and control, then they probably will be similarly disadvantaged by the adverse effects of climate change. This is of course speculation and can only be validated empirically later. That said, factors rooted in historically, politically and socially constructed processes in large part shape climate outcomes on and responses by human populations (Rahman, 2003). The costs and risks of climate change are also not distributed equally among men and women. Severity of droughts, increase in flooding events and other climate change effects can also affect the ability of actors to effectively negotiate fair arrangements in order to increase their adaptive capacities and reduce vulnerability. Existing inequalities may be compounded by climate changes.

The Cambodian studies discuss climate change impacts and how people respond and adapt. They indicate to us that men, as well as women, are affected by longer dry spells and drought. They dispel earlier WED 'women only' views that women are often the hardest hit and are thereby the biggest actors and stakeholders in effective climate change adaptation. These cases also demonstrate that, in adaptation, gender roles are far from fixed, are changing, and are often contingent on changing social, political and even climate conditions. Women and men negotiate their roles, which may be contested at times, as seen in the reluctance of the men in one of the studies to take up more active marketing activities in the

wake of floods. In the Oxfam and UN Vietnam (2009) study of three rural communities, women assumed formerly male tasks but also continued their caring roles and obligations; it could be seen therefore that simultaneous processes of change and continuity were taking place. Thus, workloads change, new obligations arise; for women, workloads can intensify especially since they perform new and old tasks on top of continuing responsibilities for reproductive work, the type of work that is often resistant to change.

Climate and gender research and planning should be conscious of these dynamics of change and continuity, and their differential yet negotiated outcomes. Additionally, as the Cambodian cases have shown, climate change conditions may provide opportunities for levelling the field, as obligations and responsibilities for women and men are equalised under conditions of exigency and crisis. Adapting to climate change may also provide opportunities for people to introduce more long-lasting positive change which enhances resilience without bouncing back to a previous state of normal functioning. Earlier analyses on gender and climate change unfortunately say little about this possibility, as they are quick to posit that women are immediately worse off. Women-specific disadvantages can be real; reality however is more dynamic than is often assumed, and gender is constantly in the process of being re-constructed as it is simultaneously resilient and pliant in the face of change. Institutional responses, to be truly effective, should therefore be mindful of this dynamism. Following Cornwall (2007) and Nightingale (2006), gender and climate planners should then focus on the practices that materialise the marginalisation, difference, vulnerability and insecurities of women, of certain categories of men and of minority groups, instead of designing programmes that will enhance women's participation in development, or possibly in institutional adaptation programmes.

It is also important to note that adopting a human security lens for gender and climate cases enables sensitivity towards multiple and interlocking types of insecurity – personal, economic, food, livelihood, resource – as these are conditions that require adaptive and mitigating responses towards building resilience. Finally, as Hudson (2005) instructs, bringing a feminist perspective to the human security concept highlights the pitfalls of masking differences behind the term 'human', thus drawing important attention to the workings of difference and power in climate change scenarios.

References

- Acharya, Keya (2009) "Women Farmers Ready to Beat Climate Change", *IPS*, 17 March. <http://ipsnews.net/news.asp?idnews=46131> (accessed 7 June 2010).
- Adger, W. Neil (1996) *An Assessment of Vulnerability to Climate Change in Xuan Thuy, Vietnam*, Unpublished paper, CSERGE, University of East Anglia and University College London.
- Adger, W. Neil (2000) "Social and Ecological Resilience: Are They Related?", *Progress in Human Geography*, 24(3), pp. 347–364.
- Adger, W. Neil, Kelly, P. Mick, Winkels, Alexandra, Huy, Luong Quang and Locke, Catherine (2002) "Migration, Remittances, Livelihood Trajectories and Social Resilience", *Ambio*, 31(5), pp. 358–366.
- Agrawal, Arun and Perrin, Nicolas (2009) "Climate Adaptation, Local Institutions and Rural Livelihoods", In W. Neil Adger, Irene Lorenzoni and Karen L. O'Brien (eds), *Adapting to Climate Change: Thresholds, Values, Governance*, Cambridge: Cambridge University Press, pp. 350–367.
- Ariyabandu, Madhavi M. (2004) "Women, the Risk Managers in Natural Disasters", Presentation prepared for the workshop on *Gender Equality and Disaster Risk Reduction*, East-West Center, Hawaii, 10–12 August.
- Blaikie, Piers, Cannon, Terry, Davis, Ian and Wisner, Ben (1994) *At Risk: Natural Hazards, People's Vulnerability and Disasters*, London and New York: Routledge.
- Black, Richard, Kniveton, Dominique, Skeldon, Ronald, Coppard, Daniel, Murata, Akira and Schmidt-Verkerk, Kerstin (2008) *Demographics and Climate Change: Future Trends and Their Policy Implications for Migration*, Working Paper T-27, Sussex: Development Research Centre on Migration, Globalisation and Poverty.
- Bradshaw, Sarah (2004) *Socio-economic Impacts of Natural Disasters: A Gender Analysis*, Santiago, Chile: Women and Development Unit, Economic Commission for Latin America and the Caribbean (ECLAC).
- BRIDGE (2008) *Gender and Climate Change: Mapping the Linkages. A Scoping Study on Knowledge and Gaps*, Sussex: Institute of Development Studies, University of Sussex.
- Canadian Global Change Program (n.d.) "What is Human Security?", *Changes: An Information Bulletin of Global Environmental Change*, No. 5. http://www.globalcentres.org/cgcp/english/html_documents/publications/changes/issue5/index1.htm.
- Cleaver, Frances (2000) "Analysing Gender Roles in Community Natural Resource Management: Negotiation, Lifecourses and Social Inclusion", *IDS Bulletin*, 31(2), pp. 60–67.
- Cornwall, Andrea (2007) "Revisiting the 'Gender Agenda'", *IDS Bulletin*, 38(2), pp. 69–78.

- Dankelman, Irene (2002) "Climate Change: Learning from Gender Analysis and Women's Experiences of Organising for Sustainable Development", *Gender and Development*, 10(2), pp. 21–29.
- Demetriades, Justina and Esplen, Emily (2008) "The Gender Dimensions of Poverty and Climate Change Adaptation", *IDS Bulletin*, 39(4), pp. 24–31.
- Denton, Fatma (2002) "Climate Change Vulnerability, Impacts and Adaptation: Why Does Gender Matter?", *Gender and Development*, 10(2), pp. 11–20.
- Eakin, Hallie and Luers, Amy Lynd (2006) "Assessing the Vulnerability of Social-environmental Systems", *Annual Review of Environment and Resources*, Vol. 31, pp. 365–394.
- Elmhirst, Rebecca and Resurreccion, Bernadette P. (2008) "Gender, Environment and Natural Resource Management: New Dimensions, New Debates", In Bernadette P. Resurreccion and Rebecca Elmhirst (eds) *Gender and Natural Resource Management: Livelihoods, Mobility and Interventions*, London and Ottawa: Earthscan and International Development Research Centre, pp. 3–32.
- Enarson, Elaine (1998) "Through Women's Eyes: A Gendered Research Agenda for Disaster Social Science", *Disasters*, 22(2), pp. 157–173.
- Enarson, Elaine (2001) "What Women Do; Gendered Labor in the Red River Valley Flood", *Global Environment Change Part B: Environmental Hazards*, 3(1), pp. 1–18.
- Enarson, Elaine and Fordham, Maureen (2001) "From Women's Needs to Women's Rights in Disasters", *Environmental Hazards*, 3(1), pp. 133–136.
- GenderCC-Women for Climate Justice (2007) *Recommendations: Network of Women Ministers and Leaders for Environment*, Bali. http://www.gendercc.net/fileadmin/inhalte/Dokumente/UNFCCC_conferences/Women_ministers_Bali-Declaration_COP13.pdf (Accessed 6 June 2010).
- Gasper, Des (2005) "Securing Humanity: Situating 'Human Security' as Concept and Discourse", *Journal of Human Development*, 6(2), pp. 221–245.
- Guha-Sapir, Debarati (1997) "Women in the Front Line: Women in Developing Countries Should Be Key Players in Disaster Preparedness and Relief", *The UNESCO Courier*, October, Paris: UNESCO.
- Hartmann, Betsy (2007) "Climate Refugees and Climate Conflict: Who's Taking the Heat for Global Warming?," Paper presented at the Panel on Climate Change, *4S Annual Conference*, Quebec, 11 October.
- Helmer, Madeleen and Hilhorst, Dorothea (2006) "Natural Disasters and Climate Change", *Disasters*, 30(1), pp. 1–4.

- Helsinki University of Technology (TKK) and Southeast Asia START Regional Center (SEA START RC), Chulalongkorn University (TKK and SEA START RC), (2009) *Water and Climate Change in the Lower Mekong Basin – Diagnosis and Recommendations for Adaptation*, Espoo, Finland: Water and Development Publications.
- Hilhorst, Dorothea and Bankoff, Greg (2004) “Introduction: Mapping Vulnerability”, In Greg Bankoff, Georg Frerks and Dorothea Hilhorst (eds), *Mapping Vulnerability: Disasters, Development, and People*, London: Earthscan, pp. 2–9.
- Hudson, Heidi (2005) “‘Doing’ Security as though Humans Matter: A Feminist Perspective on Gender and the Politics of Human Security”, *Security Dialogue*, 36(2), pp. 155–174.
- Intergovernmental Panel on Climate Change (IPCC) (2007) *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Contribution of Working Group II to the Fourth Assessment Report of the IPCC, Cambridge: Cambridge University Press.
- Jackson, Cecile (1993) “Doing What Comes Naturally? Women and Environment in Development”, *World Development*, 21(12), pp. 1947–1963.
- Jewitt, Sarah (2002) *Environment, Knowledge and Gender: Local Development in India’s Jharkhand*, Aldershot: Ashgate.
- Kelly, P. Mick and Adger, W. Neil (2000) “Theory and Practice in Assessing Vulnerability to Climate Change and Facilitating Adaptation”, *Climatic Change*, 47(4), pp. 325–352.
- Lambrou, Yianna and Piana, Grazia (2006) *Gender: The Missing Component of the Response to Climate Change*, Rome: Food and Agriculture Organization of the United States (FAO).
- Leach, Melissa (1992) “Gender and the Environment: Traps and Opportunities”, *Development in Practice*, 2(1), pp. 12–22.
- Leach, Melissa (2007) “Earth Mother Myths and Other Ecofeminist Fables: How a Strategic Notion Rose and Fell”, *Development and Change*, 38(1), pp. 67–85.
- Maguire, Brigit and Hagan, Patrick (2007) “Disasters and Communities: Understanding Social Resilience”, *The Australian Journal of Emergency Management*, 22(2), pp. 16–20.
- Nightingale, Andrea J. (2006) “The Nature of Gender: Work, Gender and Environment”, *Environment and Planning D: Society and Space*, 24, pp. 165–185.
- Nightingale, Andrea J. (2009) “Warming Up the Climate Change Debate: A Challenge to Policy Based on Adaptation”, *Journal of Forest and Livelihood*, 8(1), pp. 84–89.
- Norm, Sina (2009) *Gender & Climate Change Adaptation: Changing Rural Farmers’ Livelihood Patterns in Maung Russey District, Battambang Province, Cambodia*, Unpublished MSc thesis, Thailand: Gender and Development Studies, Asian Institute of Technology.

- O’Riordan, Timothy and Jordan, Andrew (1999) “Institutions, Climate Change and Cultural Theory: Towards a Common Analytical Framework”, *Global Environmental Change*, 9(2), pp. 81–93.
- Oxfam and United Nations Viet Nam (UN Vietnam) (2009) *Responding to Climate Change in Viet Nam: Opportunities for Improving Gender Equality*, Policy Discussion Paper, Hanoi: Oxfam and United Nations Viet Nam.
- Rahman, Monika (2003) “Gender, Global Environment Change, and Human Security”, *Aviso: An Information Bulletin on GECHS*, No. 12.
- Rao, Brinda (1991) “Dominant Constructions of Women and Nature in the Social Science Literature”, CES/CNS Pamphlet 2, Santa Cruz: University of California.
- Resurreccion, Bernadette P., Sajor, Edsel E. and Fajber, Elizabeth (2008) *Climate Adaptation in Asia: Knowledge Gaps and Research Issues in South East Asia*, Colorado: Institute for Social and Environmental Transition (ISET).
- Scott, Joan Wallach (1988) *Gender and the Politics of History*, New York: Columbia University Press.
- Skutsch, Margaret M. (2002) “Protocols, Treaties, and Action: The ‘Climate Change Process’ through Gender Spectacles”, *Gender & Development*, 10(2), pp. 30–39.
- Speranza, Ifejika C., Ayiamba, Elias, Mbeyale, Gimbage, Ludi, Eva, Ong’any, Paul and Mwamfupe, Davis (2006) “Strengthening Policies and Institutions to Support Adaptation to Climate Variability and Change in the Drylands of East Africa”, In Hans Hurni and Urs Wiesmann (eds), *Global Change and Sustainable Development: A Synthesis of Regional Experiences from Research Partnerships*, Perspectives of the Swiss National Centre of Competence in Research (NCCR) North-South 5, Bern: Geographica Bernensia.
- Sreng, Sopheap (2010) *ICTs in Flood Vulnerability Mitigation and Its Impacts on Rural Livelihoods: Gender and Ethnicity Dimensions in Ratanakiri Province, Cambodia*, Unpublished MSc thesis, Thailand: Gender and Development Studies, Asian Institute of Technology.
- Tacoli, Cecilia (2009) “Crisis or Adaptation? Migration and Climate Change in a Context of High Mobility”, In Jose Miguel Guzman, George Martine, Gordon McGranahan, Daniel Schensul, Cecilia Tacoli (eds), *Population Dynamics and Climate Change*, London: International Institute for Environment and Development (IIED) and United Nations Population Fund (UNFPA).
- Terry, Geraldine (2009) “No Climate Justice without Gender Justice: An Overview of the Issues”, *Gender & Development*, 17(1), pp. 5–18.
- United Nations Vietnam (UN Vietnam) (2009) *Gender and Climate Change in Viet Nam*, Hanoi: United Nations-Vietnam.
- Villagrasa, Delia (2002) “Kyoto Protocol Negotiations: Reflections on the Role of Women”, *Gender & Development*, 10(2), pp. 40–44.

Walker, Brian and Salt, David (2006) *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, Washington D.C.: Island Press.

Wisner, Ben et al. (2007) *Climate Change and Human Security*. <http://www.radixonline.org/cchs.html> (accessed on 6 June 2010).

Women's Environment and Development Organization (WEDO) (2008) *Gender, Climate Change and Human Security: Lessons from Bangladesh, Ghana and Senegal*, Washington, D.C.: WEDO.

Yonder, Ayse, Akcar, Sengkul and Gopalan, Prema (2005) *Women's Participation in Disaster Relief and Recovery*, Seeds 22, New York: The Population Council.