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Climate Change and Migration: Considering the Gender Dimensions

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Climate Change and Migration: Considering The Gender Dimensions

Discussions within public, policy and academic realms regarding climate change and migration are often gender neutral (WEDO 2008). As a result, important differences in the migration experiences of women and men are neglected. Yet migration is a social process – actually, migration is a social process embedded within a variety of other social processes. More specifically, gender-influenced cultural expectations, policies, and institutions intersect to shape migration’s causes and consequences. In this way, migration is inherently gendered and climate change will, therefore, yield different migratory experiences and impacts for the world’s women and men. This chapter explores these potential gender dimensions.

The chapter is informed and motivated by recent pioneering research presented in special issues of *International Migration Review* (40(1), 2006) focused on gender and migration studies, as well as a migration-focused special issue of *Gender, Technology and Development* (12 (3), 2008). Further, innovative scholarship linking gender and climate change has recently appeared in two issues of *Gender and Development* (10(2), 2002; 17(1), 2009). This important body of work adds nuance to earlier insight on the gendered aspects of migration – particularly as related to migration patterns, processes and policies.

In addition to these research advances, advocates continue to work tirelessly within international climate negotiations to bring gender more centrally into discussions of adaptation and mitigation. Years of effort reached a major turning point in 2007 at COP13 in Bali with the formation of “Gendercc-women for climate justice” – a global network of women and gender activists working for gender and climate justice (Hemmati and Röhr 2009). Also reflecting coalescence of concern, organizations such as the Women’s Environment and Development

Organization (WEDO) and the Global Gender & Climate Alliance (GGCA) – continue to work on engaging policymakers, the public and researchers on gender aspects of development issues, including those related to climate.

Following, we make use of a livelihoods framework to explore the ways in which climate change may differentially shape both migration’s cause and consequence by gender. In addition, we offer discussion of two pathways through which climate change’s gendered migration impacts may manifest: 1) shifts in proximate natural resources and agricultural potential, as well as 2) increases in extreme weather events. Finally, although we trust that this overview is useful, our effort in bringing together existing work has also made very clear that substantial gaps remain in both research and policy arenas. We close with a discussion of such gaps and related needs.

“Sustainable Livelihoods” as a Conceptual Framework

Originating in work by Britain’s development organization, the Department for International Development (DFID), the “Sustainable Livelihoods” framework has been successfully used in a wide variety of analytical endeavors including exploration of food security (Bank 2005) and household diversification strategies (Yaro 2006). Central to the framework is the understanding that the relative availability of various “capital assets” shapes household livelihood options (Figure 1). These assets include human capital (e.g., labor), financial capital (e.g., savings), physical capital (e.g., automobiles), social capital (e.g., kin networks), and natural capital (e.g., wild foods from communal lands). Of course, the assets’ relative availability is shaped by individual and household actions as well as broader socio-economic-political structures and processes. In addition, as suggested by the figure, livelihoods strategies are further shaped by

household vulnerability as impacted by shocks and stresses. As an example of gendered dimensions of livelihoods and livelihood decision-making, socio-culturally-defined gender roles shape both perceived value of “assets” (e.g. differential value placed on men and women’s human capital) as well as actual household and individual use of the assets themselves (e.g., natural resource collection perceived as “womens” work).

(Figure 1: Livelihoods Framework about here)

Shifts in Proximate Natural Resources and Agricultural Potential:

A Migration “Push” Factor

The relative availability of particular assets ultimately shapes household livelihood strategies. Such strategies may include the use of human capital (e.g., migration in search of employment (Collinson et al. 2006)) or engagement of local natural capital (e.g., making reed-based craft products for market sale (Pereira, Shackleton, and Shackleton 2006)).

Since “natural capital” is often essential in meeting basic living requirements across rural regions of the world’s less developed nations, environmental change has immediate and direct impacts on livelihood options and, more directly, on the health and well-being of millions of households (Koziell and Saunders 2001). Important natural resource-based activities include arable farming, livestock husbandry, and consumption and trade in natural resource products (e.g., fuelwood, wild herbs). Natural capital also acts as a “buffer” against household shocks such as job loss and/or mortality (Hunter, Twine, and Johnson 2009).

In the face of shifts in natural capital’s availability, households may make adjustments in the use of other assets (Brown, Pinzon, and Prince 2006). Specifically, if lacking sustainable

livelihood options due to cumulative processes of environmental degradation (Zweifler, Gold and Thomas 1994), households may strategically diversify with some household members migrating in search of opportunity (Bilsborrow 2002). In this way, a decline in natural-resource based livelihood options can act as a “push” factor shaping patterns of outmigration (Bates and Rudel 2004).

Of course, migration – residential relocation – is a complex phenomenon with many dimensions. For instance, migration varies in its motivation (e.g., employment, amenities), level of permanence (e.g., relocation may be temporary), in addition to varying in the number of household members involved (e.g., adult members may be sent toward employment opportunities). A continuum also exists as to the voluntary nature of relocation (e.g., natural disasters may force “distress migration”). Other chapters in this volume offer more explicit detail on the potential pathways through which climate change may broadly shape future patterns and processes related to human migration (see, for example, Chapter X). We focus here on the potential for gender differentiation in migration processes and patterns.

Gender and Livelihood Migration

*“Any dramatic and unplanned change to the environment
will present practical challenges to
how people make their livelihoods,
and this in turn will challenge or reaffirm
women’s and men’s roles, and power, in their families,
communities, and wider society.”*

Sweetman, 2009

Bringing the livelihood discussion back to gender, many contemporary patterns suggest the “environmental push” shaping livelihood labor migration is not gender-neutral. Indeed, several powerful examples illustrate the differential impacts and vulnerability across gender – while also illustrating how various impacts are often culturally-specific. For example, Terry (2009:7) illustrates how cultural forces create gender-specific vulnerabilities through her description of migration from western African nations. Here, she claims climate stress is ultimately to blame for the recent deaths of young male migrants trying to reach Europe by boat. Within this cultural setting, young men primarily experience the “push” of environmental decline and households send young adult migrants in the hopes of generating income through remittances.

Environmental “push” factors also impact women. Recent work in Nepal, one of the world’s least developed countries, provides evidence of this gendered migration effect. In Nepal’s Chitwan Valley, the vast majority of households are dependent on proximate natural resources through reliance on subsistence farming, animal husbandry, and locally collected forest products. Using monthly panel data covering a nearly 10-year period (1997-2006), Bohra-Mishra and Massey (2010) empirically model outmigration as a function of environmental deterioration, controlling for relevant social, economic, and demographic variables. They find that, for Chitwan valley’s women residents, increases in collection times for fodder and firewood were both associated with increases in the probability of local migration. As argued by the researchers, “Since fodder and firewood are gathered from local forests, these results imply that deforestation is a significant cause of increased female mobility within the Chitwan Valley.” (Bohra-Mishra and Massey 2010, this volume:page X)

Environmental “push” factors also women even in settings were they, themselves, less often migrate. As illustration, in agriculturally-dependent rural Mexican communities, gendered migration and household divisions of labor often result in increased workloads for the women left behind by male-dominated migration streams. In the Sonoran state of northwest Mexico, women’s livelihoods centrally involve the conversion of locally produced fruits and vegetables into canned and candied products. These products are then used within the household, sold to market, and/or offered as gifts to strengthen social ties. Forecasted declines in water availability seriously compromise the viability of this local livelihood strategy with virtually no local alternatives for low-educated local women. Such declines in this natural-capital based livelihood option may push more male migration since distant alternative livelihood options tend to be more available to men. Not to say, however, such options are desirable – mining, for instance, has proven particularly hazardous. Still, increased reliance on male-dominated migrant incomes has had negative implications for female empowerment – the empowerment which had recently been enhanced through the livelihood diversification offered by the local fruit industry (Buechler 2009). Overall, in cases such as the Mexican Sonoran, we see livelihood strategies, including migration, shaped by environmental factors interacting with gendered labor processes and household division of labor.

In many cases, though, women do migrate – and often solo. Indeed, contemporary migration has been “feminized” by the expansion of global markets and related socioeconomic transformations. This dramatic shift has occurred in the post-1989 era of economic globalization (Piper 2008; Silvey 2004), and the transformation is about more than simply changing proportions of migrant women and men. In fact, the female share of global migration streams is similar to that in the past – already in 1960, women represented 46.7% of international migrants,

49.6% by 2005 (, Morrison, Schiff and Sjöblom 2009). Beyond these aggregate numbers, however, what has more dramatically changed is the type of moves undertaken by women, as well as the potential impacts of those moves. Consideration of these changes is important as we reflect upon the potential gender dimensions of the migration-climate association.

As noted, compared to decades past, today's migrant women are far more likely to relocate on their own or with other migrants outside of their family circle (UNFPA 2006; Piper 2005). A powerful example of the transformative effect of such migration is provided by the Philippines, an island nation with thousands of isolated, peripheral communities. Circular migration by island women for work both overseas and in the Philippine's urban areas has dramatically increased in recent years. Singapore, Hong Kong and the Arabian Gulf region are prominent destinations for Filipina overseas contract workers, often hired as live-in domestic workers (McKay 2005). Migrant remittances sent back to origin communities are regularly invested in material goods such as agricultural tools, cars, and motorcycles. Household renovations and development of home-based businesses (e.g. corner stores, tailor shops) are also fueled by migrant income sent home. In general, female migration has become an important means of diversifying household livelihoods, funding additional diversification strategies, and therefore, promoting overall household security (McKay 2005).

More generally, migrant remittances are a critical source of income for vulnerable households across the globe. For 2007, recorded remittances flows worldwide were estimated at \$318 billion, of which \$240 billion went to developing countries (World Bank 2007). Importantly, informal channels of remittances are not included in these data – and, hence, these levels are no doubt significantly underestimated. In 2007, India received the largest volume of migrant remittances (\$27 billion), with China and Mexico ranking close behind (\$25.7 billion

and \$25 billion respectively). International migrants from the Philippines sent back a total of \$17 billion, and migrants from France \$12.5 billion (World Bank 2008).ⁱ

As suggested by the Philippines example, shifts in global labor demands underlie this dramatic change in the nature of male/female international migration. The sheer demand for “reproductive” services (those associated with the domestic sphere such as cleaning and caregiving) within the more developed economies is, in part, fueling female international migration. Examination of the professional profiles of male and female migration streams confirm this distinction. Specifically, the most highly skilled categories of migrants tend to be male (e.g. international recruitments), although women also comprise a substantial portion of this category. Still, household, entertainment and unskilled labor migrant streams are predominantly women. In addition, many skilled women undergo “de-skilling” through the migration process as well-educated women undertake migration for domestic or other “unskilled” employment opportunities (Piper 2005).

As suggested by the gendered labor demands pulling international migrants, gendered distinctions within migration streams are embedded within, and the products of, broader cultural norms and processes. Indeed, these gendered migration patterns are clearly reflective of a broader social order – yet, that social order is reciprocally influenced by migration processes.

Illustrating migration’s influence on gender norms, early scholarship on gender and migration generally viewed migration as emancipating for women. Evidence in some settings suggests that migrant women may, indeed, experience greater independence and personal autonomy due to increased wage-earning potential and control over monetary resources (Fonor 2002). Young women (and men) from Kyrgyzstan, for example, migrate for income, education, as well as to escape cultural traditions such as early marriage (Thieme 2008). Still, negative

impacts have also been revealed since increases in responsibility do not always translate into increases in empowerment and/or rights. As an example, given the highly feminized nature of Asian temporary migration streams, such livelihood decisions often result in a reversal of traditional gender roles whereby the wife becomes the family's breadwinner (Piper 2008). Marital conflict may result from the challenge brought to traditional masculinity as the migrant's husband, then, takes greater responsibility for attending to the daily needs of the household and children (Piper 2008). In some cultures, such visible role reversal is seen as a downgrading of the husband's social status (Pinnawala 2008).

Of course, men's gender roles are not the only ones challenged by the new social arrangements. Solo migrant women must themselves renegotiate their sense of place within the origin household. Those women who have left children behind, as example, experience a phenomenon referred to as 'transnational motherhood' often within 'transnationally split' households (Piper 2008). The experiences of women migrants from Sri Lanka, living in west Asia, illustrate these shifting social dynamics (Pinnawala 2008). Indeed, over 70 percent of the total Sri Lankan contract work force overseas are women, with the vast majority of these migrants engaged in domestic work classified as "unskilled," particularly as housemaids (90 percent of overseas female Sri Lankan migrants since 1995). Research with this migrant population documents the emergence of new social positions and roles that often facilitate the management of the migrant's transnational families by proxy. In this case, a geographically absent mother remains engaged in day-to-day life of the origin family through regular communication channels and the provision of instruction and advice to a local relative, often also female. In this way, a female migrant may use a proxy to manage her affairs by long distance –

reporting back on confidential family issues such as misbehaving children or husbands (Pinnawala 2008).

Yet there are no universals with regard to the impacts of migration on gendered roles and responsibilities. Such changes vary by cultural setting, household characteristics, and the migrant experience itself. Recent work focused on Mexican migrant households in the U.S. illustrates some of the nuances within the migration's impact on reconstruction of gender relations. Parrado and Flippen (2005) demonstrate how some gender relations found in Mexican origins are discarded upon migration while others are maintained and even reinforced. Specifically, while residence in the U.S. expands employment opportunities for women, gains in this realm do not necessarily translate more egalitarian household division of labor or more liberal gender attitudes within migrant households.

As suggested by the experience of U.S.-based Mexican migrant households, in some cases, gendered migration streams reinforce as opposed to transform traditional cultural norms. We can further consider the case of undocumented female Vietnamese migrants in Bangkok where, Yen and colleagues (2008) argue, gendered migrant labor results in the reproduction of patriarchal norms. In this case, women work invisibly behind the scenes, preparing food, cleaning, and washing dishes, thereby dutifully undertaking the reproductive tasks "assigned to women as something 'natural'." As women workers re-enact their ascribed within existent expectation and hierarchies, migration acts not as an empowering force, but rather as 'cultural imprisonment.' (Yen et al. 2008:378).

In all, early thoughts on the potential for gendered climate-migration connections can be informed by bringing together literature on the feminization of global migration streams and the various gender dimensions of livelihood migration. Overall, this intersection suggests the

possibility of intensified pressure on livelihoods particularly within impoverished households in regions with high dependence on local natural capital. As the local availability of natural resources becomes less predictable, and perhaps constrained, migration may be increasingly viewed as a livelihood option. In some cultural settings, men typically engage in such migrations (consider the West African example above), although global data suggest increasing numbers of solo female migrants. As evidenced by several examples provided here, there are gender dimensions to migration's determinants (e.g., gendered labor force "pulls"), and well as gendered influences on the nature and experience of migration itself (e.g. "skill" levels). Further, migration itself often results in a reshaping of gender norms and roles. All such gender-migration connections can logically be expected to shape the climate-migration process, and its impacts, as well.

Extreme Weather Events: Learning From Disaster Research on Migration and Gender

In addition to livelihood research, disaster scholarship represents another body of existing literature ripe to inform thoughts on the climate-gender-migration nexus. Indeed, climate change research predicts increased occurrence and severity of extreme weather events, sudden onset disasters as well as chronic disasters including drought and recurrent flooding (IPCC 2007). Over the past few decades there has been a dramatic rise in the number of recorded disasters, though some researchers caution that increases in detection and recording reflect shifts in technology, classification, and media and communication (Eshghi and Larson 2008). Since the reliable recording of disaster events in the 1960s, there has been a rise in the number of people affected by disasters (Hunter 2005). In addition, a 2009 Oxfam report forecasts a 54% increase in the number of people affected by climate-related disasters such as floods and droughts. The report

suggests that by 2015, an average of 375 million people will be affected by climate-related disasters annually, up from an average of 250 million per year.¹ In this context, the association between disaster risk reduction, development, and climate change is increasingly discussed among researchers and policy-makers, especially around reducing socio-economic vulnerability to natural hazards (Helmer and Hillhorst 2006; Thomalla, Downing, Spanger-Siegfried, Han, and Rockström 2006; van Aalst 2006). With mounting evidence of a link between climate change, migration, and natural hazards, we must consider how social and economic vulnerabilities shape population movements before, during, and after disaster.

Disasters & Migration: There is a wide body of literature examining population mobility in disaster, and much of the research on the social dimensions of disaster is implicitly focused on the spatial flows of groups (Aguirre 1983; Fowlkes and Miller 1983). Like other migration in response to compromised livelihoods, one way to conceptualize disaster-related movements is in terms of level of permanence. Such temporal dimensions can range from short-term evacuation and temporary displacement to long-term, perhaps permanent, relocation. Oliver-Smith (2006) outlines several demographic movements related to disaster, including flight (ex., escape), evacuation (ex., removal from harm's way), displacement (ex., uprooting from a home ground), resettlement (ex., relocation to new homes), and forced migration (ex., people must move to a new and usually distant place). Each form of movement also varies in relation to other factors in particular contexts. These compounding factors are presented in a series of multidimensional

¹ Oxfam (2009) and the UN (2007) have classified drought, extreme temperature (e.g. heat waves), wildfires, floods, and meteorological storms as climate-related natural hazards. Geophysical natural hazards such as earthquakes, tsunami and volcanic eruptions were not included in the climate-related classification. The UN (2007) associated landslides, mudslides, and avalanches with a mix of geological and weather-related factors, but for the report considered them climate-hazards.

pairs, which overlap and intersect to shape the variable occurrences of movement in disaster: proactive-reactive; voluntary-forced; temporary-permanent; physical danger-economic danger; administered-non-administered. In other words, how and why people move varies in relation to a number of social forces, including time, risk and exposure, and level of initiation and control.

Embedded within these processes, there are both circular and transformative features of disaster migration as disaster-affected regions repopulate over time. Mileti and Passerini (1996), for example, argue that relocation following disaster is not unidimensional and entails a variety of human activities, including (1) wholesale relocation of a population or community to a entirely new site, (2) intraurban relocation within the predisaster location that moves human activities to areas with less risk, and (3) urban reconstruction on original sites, where “relocation is no relocation at all” (p. 100).

While wholesale relocation of an entire group is relatively rare, several cases of mass migration after disaster are worth mentioning because of the scale and scope of the movements. Drawing on evidence from an instructive array of migration experiences, Reuveny (2008) examines the ways in which deteriorating environmental conditions shaped migratory flows in three cases: drought in the 1930s across the U.S. Great Plains; population movements from Bangladesh to India in the 1950s; and internal displacement from Hurricane Katrina which struck the southern United States in 2005. Hurricane Katrina, in particular, illustrates a variety of migratory impacts. When the hurricane made landfall on August 29, 2005, over 1.1 million people along the Gulf Coast were evacuated and 770,000 were temporarily displaced. By December 2005, over half-million evacuees had not returned to the affected area – with the event deemed “the largest mass population displacement in U.S. since the Dust Bowl migrations of 1930s” (Falk, Hunt and Hunt 2006:116; White House Report 2006).ⁱⁱ But within this event,

social structures linked to the intersection of race/ethnicity, class, gender, and age created conditions that put some groups more at risk than others. Oliver-Smith (2006) has argued that a single disaster can “fragment into different and conflicting sets of circumstances,” leading some groups to migrate and others to not migrate.

While there is an emerging literature on the ways in which disasters and environmental, natural, and technological hazards function as “push” factors in migration (Hunter 2005), much less is known about the dynamics of slow-onset changes associated with climate change. The disaster social science literature provides a lens through which to frame potential climate related movements. Furthermore, less is known about the gendered dimensions of movements driven by slow onset environmental changes. The literature on the differential experiences of women and men in disaster provides yet another foundation to build empirical and theoretical knowledge about the gender-climate-migration nexus.

Gender and Disasters: To better understand the association of gender and climate change, Terry (2009) argues that we need to draw on studies undertaken within cognate fields such as gender and disasters. Several instructive overviews of the gender-disaster literature provide an excellent starting point for exploration of this intersection (see, for example, Fothergill 1996; Enarson, Fothergill, & Peek 2006). Much of this literature focuses less explicitly on the external agent (natural hazard, disaster, or for our purposes, climate change) and more on social vulnerabilities that expose different groups to different levels of risk (Blakie, Cannon, Davis, and Wisner 1994; Cutter 1996). These social vulnerabilities, it is argued, reflect the “global distribution of power and human uses of our natural and built environment” (Enarson, Fothergill, and Peek 2006:130) – and it is these vulnerabilities that are ultimately responsible for the gendered nature of disaster impacts.

To put it more generally, although originating in ecological systems and natural hazards, disasters are inherently social phenomenon. Their consequences are “linked to who we are, how we live, and how we structure and maintain our society” (Fothergill 2004:27). Unequal distributions of hazard risks are thus linked to inequalities such as poverty, limited access to resources and mobility, as well as culturally constructed expectations that shape work patterns, household divisions of labor, and caretaking responsibilities, including those that are gendered. Gendered differences in vulnerability can be broadly captured through the lens of poverty – and the global feminization of poverty has resulted in women and girls comprising upwards three fifths of the world’s one billion poorest people (UNFPA 2008). Since disasters disproportionately affect those already living in poverty (Fothergill and Peek 2004), they have disproportionate effects on women across the globe and tend to leave poor women even more impoverished, especially when women’s incomes are resource-dependent (Enarson 2001). Thus gender and disaster researchers study differential experiences and losses among populations in particular social contexts as well as the different vulnerabilities and capacities of women and men. Results suggest that at all phases of a disaster --- before, during and after --- women and men respond to risk differently, not because of biological sex differences, but because of location in social structures (Fothergill 2004). In what follows, we examine several ways in which women and men respond to disaster differently, with a specific focus on various forms of spatial processes. We do so with an eye toward informing understanding of the potential gender dimensions of climate impacts as related to disaster events and related migration.

Risk Perception and Evacuation Patterns: Discussions of population movements and disasters often focus on displacement and forced migration after disaster. However, widespread population movements often occur *before* a disaster in the form of evacuation. Such movement is related to perception of risk, and research finds clear gender distinctions in hazard risk perception. In a qualitative study of gender, class, and family in the 1997 Red River Valley flood in Grand Forks, North Dakota, Fothergill examined women's patterns of taking flood threats more seriously than men, especially if children were present, and engaging in preparation measures in the home. Several weeks after the flood, Fothergill traveled to the affected area, and, over a period of two years, interviewed 40 middle-class women about their experiences of the disaster. She concluded that women perceive disaster and disaster threats as more serious than men because of social location: "women have less control over their lives, have less power in the world, and therefore must take risks more seriously than men do" (2004:43). In a study of the same flood event, Enarson (1999) found that women evacuated earlier than men, experienced increased care-giving responsibilities when men in their families resisted evacuation, and were less likely to delay evacuation, in part due to concerns about the safety of youth. In both studies, social location was situated in relation to gendered division of labor, caretaking responsibilities, and power.

We can turn to an August 1998 North Carolina hurricane for additional evidence for gendered risk perception shaping evacuation. Bateman and Edwards' (2002) cross-sectional survey of 1050 coastal households administered in January 1999 found that socially constructed gender differences shape intention and capacity to evacuate. Drawn from data collected on household-level patterns of evacuation (rather than intrahousehold decisions-making processes),

the study revealed that women were more likely than men to evacuate because of differences in care-giving roles and family obligations, especially having a family member with special medical needs, their greater exposure to certain risks (ex., women were more likely to live in mobile homes), heightened perception of risk, and engagement in preparedness activities such as developing an evacuation plan. Interestingly, however, researchers found that while men generally perceive less risk than women, once they do perceive heightened risk, they are more likely to evacuate than women with comparable risk exposure. As such, Bateman and Edwards outline the need to differentiate between intention to evacuate and the capacity to actually do so.

Similar patterns of the ways in which economic disadvantage and social vulnerability shaped mobility were found in other disaster contexts. Indeed, preexisting vulnerabilities of women in New Orleans factored into the gendered experiences of Hurricane Katrina. Whereas 4.3 percent of working women in the U.S. report they lack transportation, nearly 15 percent of women workers in New Orleans were without a vehicle in 2005 (Laska et al. 2008). According to Laska et al., (2008), lack of transportation serves as a barrier to women's successful evacuation, but it also constrains employment opportunities after disaster by limiting women's ability to return to work or to migrate in search of work. This point further emphasizes the need to examine the differences between intention and capacity to evacuate and the ways in which relative access to resources shape population mobility.

Risk perception differences among men and women also vary by disaster type, as well as potential severity. With respect to perceptions of climate risks, Terry (2009:8) refers to a case study of small farmers in South Africa [conducted by Thomas et al. 2007] in which women farmers recognized heavy rainfalls as a distinct risk, whereas more men than women perceived drought as a distinct climate risk. Terry attributed these differences in perceptions of climate risk

to broader livelihood patterns and relationships to livestock and agriculture. In other words, there is a connection between risk perception and livelihood migration, as explained in earlier in this chapter.

Much of our discussion thus far has focused on the cultural factors that have shaped mobility. However, cultural factors related to gender also shape experiences of *immobility*, which in disasters can have deadly consequences. Again, we can turn to the gender and disaster literature to better understand how social norms, cultural expectations, and gendered processes put women at greater risk of disaster mortality and constrain ability to move out of harm's way.

To the extent that evacuation is related to early warning systems, we must bring our attention to important gender differences in risk communication. For example, more women than men died in a 1991 cyclone in Bangladesh because warning signals did not reach many women in the home/household environment (Ikeda 1995). Research has found that more women, on average, die in natural disasters than men (Neumayer and Plumper 2007), though mortality rates vary by gender according to the type of disaster and the risks taken by human actors in particular contexts (Fothergill 1998). Citing an Oxfam International study of several countries affected by the 2004 Indian Ocean Tsunami, Hyndman (2008:109) points out that "women were up to three times more likely to have died than men."

Rather than attributing these disparities in mortality to biological sex differences in strength, size, or physical capabilities, socially produced gender relations such as caregiving roles, childhood socialization, and clothing norms affect women's ability to survive disaster. For example, many women's evacuation is constrained when they assume caretaking responsibilities for children and the elderly, and these responsibilities often put women more at risk than men to injury and death. Similarly, childhood socialization, which has encouraged boys rather than girls,

for example, to learn to swim and climb trees, is cited as a factor in higher mortality rates among women during the 2004 Tsunami (Oxfam International 2005). Finally, gender norms relegating women's mobility in public and private spheres also contributed to higher death rates among women. For example, some traditional dress codes can restrict women's ability to quickly move from hazards. When debris from the 2004 Indian Ocean Tsunami ripped away women's clothing, many women died indoors "rather to allow themselves to be exposed to the shame of running outside naked to escape" (ActionAid International 2008). In each of these examples risk perception and evacuation patterns, mobility and immobility were intimately tied to socially constructed notions of gender and differential location in social structures. These patterns must be examined in light of the urgent environmental shifts tied to climate change.

Temporary and Permanent Housing. When climate change pushes people to new residential locations, access to and experiences in temporary and permanent housing will likely vary by gender. The experiences of those displaced during disaster shed light on how housing concerns are not gender neutral and are at times even gender insensitive. Kinship networks frequently provide immediate temporary housing for those who evacuate from disaster, and it is often women's extended networks that pull members and resources to aid in successful evacuation (Litt 2008). While some evacuees end up in the private homes of friends and family, many end up in government provided temporary housing. Accommodations in shelters and temporary housing communities are not always designed around the needs of women and children (Enarson 1999). In a comparative study of housing issues following Hurricane Andrew and the Red River Valley floods, Enarson (1999) found that women faced numerous challenges in temporary housing, including social isolation, lack of privacy, and insufficient or nonexistent

child care, elder care or laundry facilities. Women were also fearful for their personal safety and concerned about overcrowding and lack of outdoor play spaces for children.

Bureaucratic procedures in government agencies, relief organizations, and insurance companies can further disadvantage those whose pre-disaster living arrangements do not meet narrow definitions of “family” or “household.” Women-headed households often face obstacles receiving aid from official relief programs that draw upon models of single headed households that privilege men (Morrow and Enarson 1996). For example, in a study of African American women displaced by Hurricane Katrina conducted one year after the storm, Murakami-Ramalho and Durodoye (2008) found difficulties receiving aid by women and their adult women children living in the same home with separate incomes.

Just as scholars have begun to look at the intersection of race, class, and gender, researchers of gender and disaster have begun to complicate categories of analysis by becoming more attuned to differences in bodies and sexualities (Enarson, Fothergill, and Peek 2007). Even basic definitions of male and female can create difficulties during displacement. Pincha (2008) conducted a qualitative study comprised of over 150 focus group interviews in more than 45 areas affected by the 2004 Indian Ocean Tsunami. Findings revealed that Aravanis, which do not fit within Western oppositional frameworks of female/women and male/men, were excluded from the relief process, temporary shelters, and official death records, and thus rendering this population invisible in many of the relief and reconstruction agendas.

These challenges are not limited to developing and non-western contexts. After discussing the controversial case of transperson who was jailed after showering in a women’s restroom in a Texas shelter following Hurricane Katrina, despite being granted permission to do so by a shelter volunteer, D’Ooge (2008) concludes that housing challenges, both temporary and

permanent, reveal not only institutionalized sexism, but also homophobia, and transphobia.

These examples reveal that notions of sex, gender, and sexuality are always situated in specific socio-cultural contexts. As scholars interested in migration, we must consider the extent to which the specific meanings of these social categories travel across time and space. Similar challenges might arise for populations forced to migrate during more slow-onset environmental changes, especially if those movements are distant rather than local.

Differential Out-Migration and Return-Migration: Migration is not uniform with respect to women's and men's movements after disaster. Often times, there is frequent male out-migration, which can lead to an increase in female-headed households and women's caregiving responsibilities. There are also different patterns of return-migration. In the U.S., for example, there are gender dimensions to Katrina-related migration which shed light on the broader association between migration, gender and disasters. There were several distinct migration flows as residents returned to New Orleans – and, in general, early analyses suggested the return migration streams resulted in a city that was whiter, older, and more affluent (Falk et al. 2006; Frey, Singer, and Park 2007). Yet, data later emerged that revealed the greatest demographic change in post-Katrina New Orleans was the loss of roughly 60% of the city's female-headed households, especially those with the presence of children under 18 years (Newcomb College Center for Research on Women 2008). Indeed, in the weeks and months following the storm, men returned in far greater numbers than women (Willinger and Gerson 2008). One scholar observed that New Orleans had effectively become a militarized and masculinized “city of men,” with U.S. soldiers, Homeland Security officers, contractors, migrant construction workers, Army Corp of engineer personnel, and volunteers, among others, converging on the disaster affected area to engage in rescue and rebuilding efforts (Batlan 2008). The rapid rise in the number of

men in the city created conditions where many women were concerned about safety and the threat of gendered violence.

Despite some disagreement over the issue of disaster-related mass migration, the potential for migration remains real, and is documented in several case studies of disaster in a global context. Movement under these circumstances is political and linked to institutionalized arrangements of power that both enables and constrains mobility. As the cases above have demonstrated, these processes during disaster are linked to gendered power arrangements that shape how and where people move. In developing a “politics of mobility and access,” feminist geographer Massey (1994:150) has argued that “mobility, and control over mobility, both reflects and reinforces power.” This politics holds true in disaster to the extent that those who leave and those who are left behind are differentially situated within social structures that are linked to raced, classed, and gendered hierarchies. But Massey notes that this is not just about “unequal distribution,” whereby some move more than others or wield more control than others. Instead, Massey (1994:150) argues that “mobility and control of some groups can actively weaken other people. Differential mobility can weaken the leverage of the already weak.” This was seen in the effects of men’s reluctance to evacuate and out-migration patterns on women’s livelihood practices and increased domestic and community work following disaster.

Much of the existing literature on gender and disaster has aimed to reduce risk for women and girls. In addition to focusing on vulnerabilities, this literature has also aimed to highlight women’s resilience to disaster. More studies are focusing on women’s proactive work in disaster and women and women’s groups are often at the center of rebuilding livelihoods, households, and communities. Similarly, while the focus of emergency managers and disaster officials have focused on prevention and preparedness activities, many in the climate change debates have

framed similar activities as coping or adaptive strategies. While there may be differences in terms, climate change adaptation can readily draw upon the knowledge in the gender and disaster literature. For example, in 2008, UN/ISDR published “Gender Perspectives: Integrating Disaster Risk Reduction into Climate Change Adaptation; Good Practices and Lessons Learned,” which offered case-study data on women’s leadership activities in managing natural and environmental resources, reducing disaster risks and adapting to climate change. It shows that gender sensitive tools and practices used in disaster risk reduction (ex. land and water use and management, alternative livelihoods) can be used to confront challenges, including those linked to livelihood migration, associated with climate change.

Bringing The Literatures Together: Climate, Migration and Gender

In all, the examples provided above illustrate migration’s many gender dimensions. In this way, they testify as to the importance of embedding studies of migration within broader social and cultural contexts. We contend that gender considerations should be given central consideration as scholarship on climate change vulnerability and adaptation moves forward – indeed, gender-blind research very simply neglects the fundamental ways in which climate-shaped migratory experiences and impacts will differ for the world’s women and men.

As reflected within the example of young men’s migration from western African nations, gender-influenced cultural expectations shape the “push” of environmental degradation acting upon migration. Within disaster settings, gender further shapes evacuation migration – with women’s social location as caregivers shaping risk perception and decisions for earlier evacuation. Further, gender distinctions in migration and return migration to/from climate-

impacted regions differentially shape vulnerability and future livelihood options for men and women.

Of course, gendered social institutions also shape the “pull” of migration – with dramatic recent increases in the migration of solo women reflecting cultural beliefs regarding their particular suitability for international domestic employment opportunities. In this way, women are increasingly carrying the burden of their households, which often remain in their origin communities (Piper 2008).

Although much stands to be learned from existing livelihoods and disaster literature, progress in research on the migration-climate-gender nexus is, challenged by the gender-blind nature of most data on international migration (World Bank 2007). International migration streams are, even in the aggregate, difficult to quantify – in part due to the large number of undocumented moves. Development of effective means of gathering and reporting gender-specific data adds yet another layer of challenge.

Even so, the challenge must be met as there is much work to be done in generating improved understanding of climate-migration-gender linkages. Some scholars argue that due to relatively higher levels of female poverty and broadly unequal power relations, climate change will disproportionately impact women (Beuchler 2009). In addition, an area not yet explored is the impact of women’s out-migration on other women in the household and/or extended family (Piper 2008). In many cases, however, it may be the men who bear the brunt of climate migration’s trials (Terry 2009). Others argue that the gender construct, itself, remains problematic (Pincha 2008). In all cases, gender-informed research approaches are required to gain the nuance understanding necessary to inform policy mitigating climate change’s impacts.

As to policy, international policy negotiations have often more centrally focused on the “economic effects of climate change, efficiency, and technical issues” (Hemmati and Röhr 2009), neglecting the social dimensions of climate change including gender issues. According to Hemmati and Röhr (2009:22), “until today, no gender analyses have been conducted in relation to the instruments and articles of the UNFCCC and the Kyoto Protocol.” However, gender issues are increasingly considered in climate-change negotiations, forums, and conferences, in part because women and gender activists have been “questioning the dominant perspective focusing mainly on technologies and markets” and putting “caring and justice in the centre of measures and mechanisms” (Hemmati and Röhr 2009:26). A series of gendered focused conferences and forums have recently been held, each producing documents that aimed to integrate gender into climate protection measures and instruments, including The Manila Declaration (October 22, 2008), the Nairobi Action Plan for African Parliamentarians on Disaster Risk Reduction and Climate Change Adaptation (February 20, 2009), and the Beijing Agenda for Global Action on Gender Sensitive Disaster Risk Reduction (April 22, 2009).

To further inform such negotiations, scholars and activists should build upon the interesting and important body of scholarship reviewed above. The work spans multiple disciplines and cultural settings, some focused on gender and livelihoods, and some within the literature on gender and disasters. In general, cultural-specific gender norms will shape the specific pathways households choose in diversification of livelihoods as faced with the implications of climate change. Migration, as a path to diversification in the face of climate change and climate-related disasters, is no exception. Explicit consideration of gender, among the many axes of gender differentiation within migration streams, adds important nuance to our

understanding of the the ways in which the migration-climate nexus shapes individual lives, household decision-making and, in general, human well-being.

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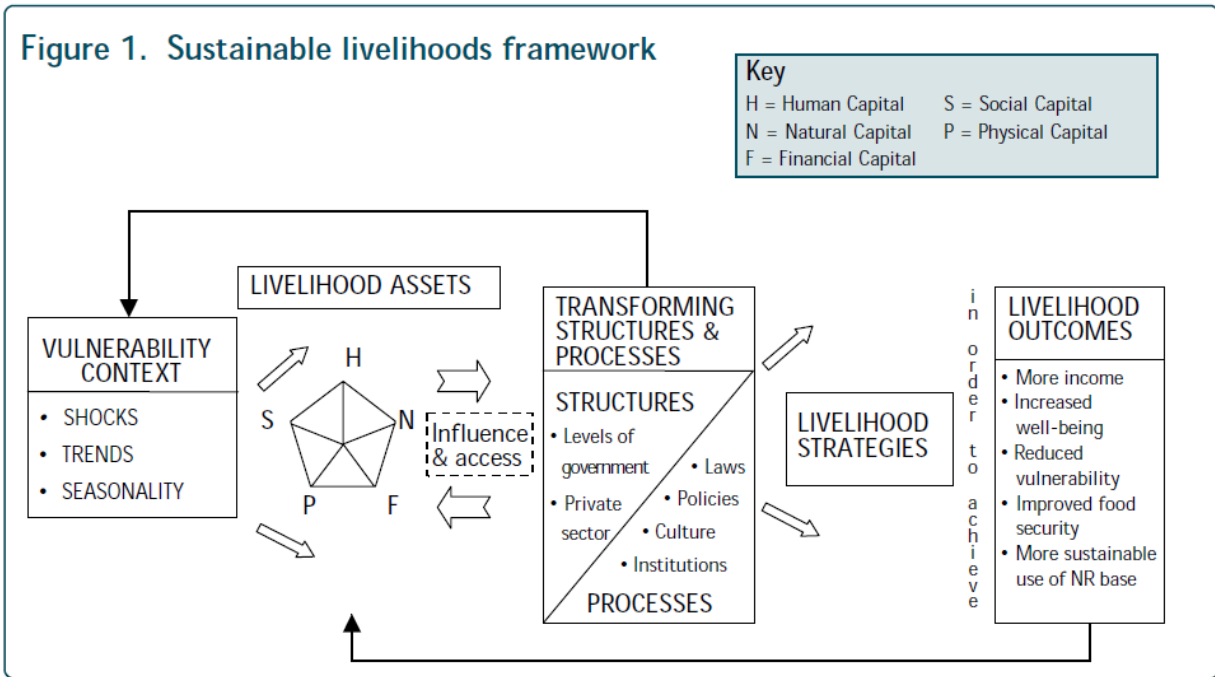
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Figure 1. Sustainable livelihoods framework



From: Department for International Development (DFID). Sustainable Livelihoods Guidance Sheets: Framework. <http://www.nssd.net/pdf/sectiont.pdf> Accessed September 2009.

ⁱ Lo (2008) offers a fascinating and nuanced account of the gendered and social impacts of remittances illustrated through West African migration.

ⁱⁱ Interestingly, some research has also documented the non-occurrence of disaster-induced out-migration. Paul (2005), for example, argues that a “constant flow of aid and its proper distribution by government and non-government organizations” led to the non-occurrence of out-migration following a 2004 tornado in Bangladesh. This claim is consistent with patterns found in other disaster research; permanent, rather than temporary, relocation following disaster is often driven by inadequate response by the state and government bodies (Oliver-Smith 2004, 2006).