



**GENDER AND CLIMATE CHANGE**  
*Capacity development series*  
**ASIA AND THE PACIFIC** Training module **3**

# Disaster risk reduction

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# I Purpose of the training module

## Box 1: Icon key



Activity or exercise



Link to other training modules



PowerPoint or video presentation



Readings



Important information



Timing indication



Internet link

## IA Rationale

The lack of international, regional and national gender-specific expertise on climate change and sustainable development issues poses one of the most pressing challenges to addressing the gender dimensions of climate change in developing countries.

To respond to this challenge, the United Nations Development Programme (UNDP) has developed a series of gender and climate change training modules and policy briefs directed at practitioners and policymakers in the Asia-Pacific region. The covered themes are specifically relevant to the region and focus on climate change issues such as adaptation and mitigation, disaster risk reduction, energy and finance.

These materials draw on the capacity development work being undertaken in partnership with other members of the Global Gender and Climate Alliance and complement the Alliance's existing training modules, resource guides and related knowledge products. They are designed to facilitate the work of the regional cadre of national experts and other partners in the Asia-Pacific region to mainstream gender into climate change efforts. The materials' preparation has been made possible by contributions from the Government of Finland and the Government of Denmark.

The materials target a range of practitioners and policy makers. The materials are designed to be used by those with experience in gender and development or by those with backgrounds in climate change, the environment and sustainable development. Readers will gain a greater and shared understanding of how gender and climate change intersect. The learning goals of this module are outlined in the Part II.

This third module in the series addresses gender issues in the context of disaster risk reduction.

## **IB** *Module structure and method*

This module provides the basic information and learning tools needed to understand and advocate for integrating gender perspectives into regional, national and community-level climate change initiatives. It covers the following topics:

- Development context of climate-related disasters;
- Understanding of gender issues and concerns in disaster risk reduction; and
- Tools and methods for understanding gender-based vulnerability and exposure to disaster risk and integrating gender perspectives into disaster risk reduction policy.

Part II of this module outlines learning objectives and presents what users can expect to know when the training concludes. Part III spells out the key take-away messages, followed by Part IV, which presents the gender dimensions of climate change, and Part V, which addresses gendered vulnerabilities to climate change impacts. Part VI discusses pathways for integrating gender outlooks in disaster risk reduction.

The module also presents case studies and other learning tools (e.g. handouts and group activities) to help facilitate use of the module and think through issues to consider when designing and implementing gender-sensitive responses to climate change. In addition, the module employs seven icons to help make it user-friendly (see Box 1). The module includes several cross-references in order to encourage facilitators and participants to consult the other modules in this series.

Training based on this module can be delivered in three sessions:

- Session 1: Part II and IV (1 hour)
- Session 2: Part V (1 hour)
- Session 3: Part VI (1.5 hour)

Total estimated session time: 3.5 hours

See Appendix B, Learning Tools, for a breakdown of time for different activities.

## II Learning objectives

- Understand the nexus between gender, disasters and climate change in the Asia-Pacific region.
- Identify gender-based differentiated vulnerabilities to disasters as well as women's positive contributions to disaster risk reduction and management.
- Outline women's needs and positive contributions to disaster adaption and solutions for gender-conscious disaster risk reduction and management.



## III Key messages



- Climate-related disasters are on the increase. Given that the Asia-Pacific region is prone to the impacts of climate-related disasters, it is urgent to look at disasters within the framework of the changing climate.
- While the impact of such disasters on people's lives and livelihoods is per se deeply concerning, disasters could also undermine gains made in sustainable development and achievement of the Millennium Development Goals (MDG).
- Impacts from disasters are not uniformly distributed within a population; they tend to hit the poorest and most marginalized groups the hardest.
- Women are particularly exposed to disaster risks—they are likely to suffer higher rates of mortality, morbidity and post-disaster ruin to their livelihoods. Several underlying factors exacerbate women's vulnerability to the impacts of disasters, including limited livelihood options, restricted access to education and basic services and discriminatory social, cultural and legal practices.
- Women are key agents of change. Their unique knowledge is essential to ensure the effectiveness and sustainability of disaster adaptation. Hence, their full and effective participation is essential.
- Women are still underrepresented in decision-making processes at local, national and international levels and their needs and concerns are not often adequately integrated into developmental efforts.
- Investing in women as part of climate responses can lead to greater returns across the MDGs and broader development objectives.
- Disaster risk reduction and management planning and financing need to reflect the different needs and priorities of men and women.
- The various analytical and advocacy tools, guidelines and case studies available on gender mainstreaming in climate change, as well as in development processes overall, are valuable and should be widely applied.
- Disaster risk reduction needs to address the underlying factors causing gender-based vulnerability and exposure to disasters, such as poverty and political marginalization. Women must be empowered to meaningfully participate in decision-making processes related to disaster risk reduction across scales and sectors.

## IV Gender, disasters and climate change

### *Learning objective: Understand the nexus between gender, disasters and climate change in the Asia-Pacific region*

1. Climate related disasters could stall gains made in achieving the MDGs, including MDG-3.

1A. A disaster is a hazard that has materialized—often taking a toll on human life, the environment and the economy. The manifestations the word is ordinarily associated with range from the 2004 Indian Ocean tsunami to the 2011 earthquake in Japan. In this module, the term ‘disaster’ refers to “severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material,

#### *Box 2: Key concepts in disaster risk reduction*

**Vulnerability:** *The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.*

**Hazard:** *A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or environmental damage.*

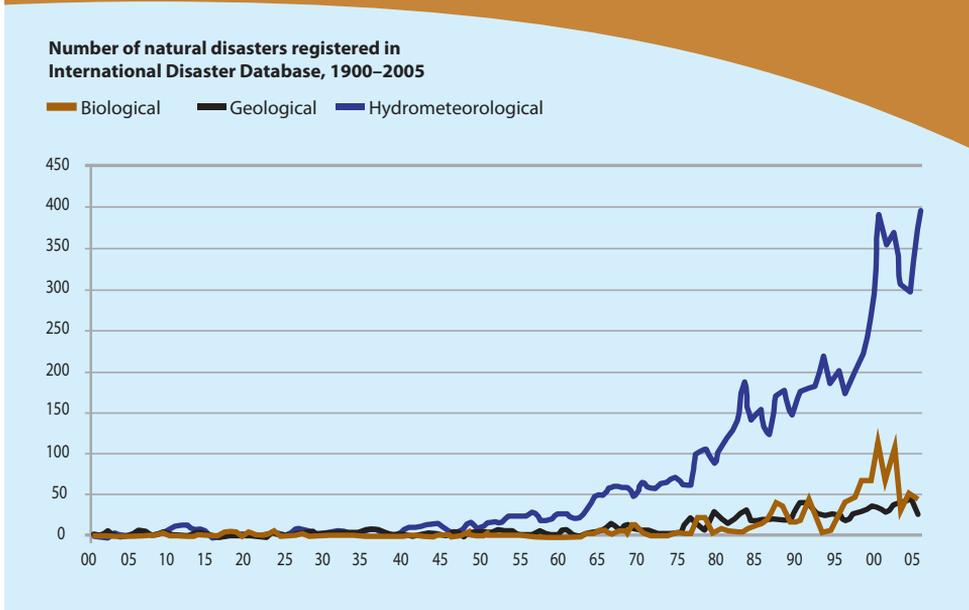
**Capacity:** *The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.*

**Disaster risk reduction:** *The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment and improved preparedness for adverse events.*

**Risk:** *The combination of the probability of an event and its negative consequences, often referred to by the following function: Disaster risk = hazard \* vulnerability*

Source: OXFAM 2011.

**Figure 1: The rise of global disasters**



Original data available at source site <http://www.em-dat.net>, UCL – Brussels, Belgium

economic, or environmental effects that require immediate emergency response to satisfy critical human needs and that may require external support for recovery” (Field et al. 2012, UNISDR 2007).

It is important to note that a disaster is not a direct result of natural hazards per se but a product of “the combination of an exposed, vulnerable and ill-prepared population or community with a hazard event” (UNISDR 2008). There are, therefore, certain aspects of a disaster that need to be understood: exposure to a hazard (e.g. low lying areas vis-à-vis floods), vulnerability to a disaster risk and adaptive capacity (the capacity of an individual or a community to cope with the negative consequences of a given disaster). Disaster risk is a function of vulnerability and hazard that, in practical terms, may translate to loss of life, bodily injury, damage to property, disruption of social services and environmental degradation. Finally, the human and environmental toll from disasters can be reduced or managed (see Box 2 for key concepts on disasters and their management).

1B. Disaster risk is on the rise globally, threatening to thwart years of progress on development and gains made towards achieving the MDGs (see Figure 1; Table 1). Increasing vulnerability to disasters is attributable to an assortment of factors,

**Table 1: Examples of disaster impacts on efforts to meet the MDGs**

<b>MDG</b>	<b>Direct impacts</b>	<b>Indirect impacts</b>
<b>1: Eradicate extreme poverty and hunger</b>	<p>Damage to housing, service infrastructure, savings, productive assets and human losses reduce livelihood sustainability.</p>	<p>Negative macroeconomic impacts including severe short-term fiscal impacts and wider, longer-term impacts on growth, development and poverty reduction.</p> <p>Forced sale of productive assets by vulnerable households pushes many into long-term poverty and increased inequality.</p>
<b>2: Achieve universal primary education</b>	<p>Damage to education infrastructure.</p> <p>Population displacement interrupts schooling.</p>	<p>Increased need for child labour for household work, especially by girls.</p> <p>Reduced household assets make schooling less affordable, girls probably affected most.</p>
<b>3: Promote gender equality and empower women</b>	<p>As men migrate to seek alternative work, women/ girls bear an increased burden of care.</p> <p>Women often bear the brunt of distress coping strategies (e.g. by reducing food intake).</p>	<p>Emergency programmes may reinforce power structures that marginalize women.</p> <p>Domestic and sexual violence may rise in the wake of a disaster.</p>
<b>4: Reduce child mortality</b>	<p>Children are often most at risk (e.g. of drowning in floods).</p> <p>Damage to health, water and sanitation infrastructure.</p> <p>Injury and illness from disaster weakens children's immune systems.</p>	<p>Increased numbers of orphaned, abandoned and homeless children.</p> <p>Household asset depletion makes clean water, food and medicine less affordable.</p>

**Table 1: (cont-d) Examples of disaster impacts on efforts to meet the MDGs**

<b>MDG</b>	<b>Direct impacts</b>	<b>Indirect impacts</b>
<b>5: Improve maternal health</b>	<p>Pregnant women are often at high risk from death/injury in disasters.</p> <p>Damage to health infrastructure.</p> <p>Injury and illness from disaster can weaken women's health.</p>	<p>Increased responsibilities and workloads create stress for surviving mothers.</p> <p>Household asset depletion makes clean water, food and medicine less affordable.</p>
<b>6: Combat HIV/AIDS, malaria and other diseases</b>	<p>Poor health and nutrition following disasters weakens immunity.</p> <p>Damage to health infrastructure.</p> <p>Increased respiratory diseases associated with damp, dust and air pollution linked to disaster.</p>	<p>Increased risk from communicable and vector borne diseases (e.g. malaria and diarrhoeal diseases following floods).</p> <p>Impoverishment and displacement following disaster can increase exposure to disease, including HIV and disrupt health care.</p>
<b>7: Ensure environmental sustainability</b>	<p>Damage to key environmental resources and exacerbation of soil erosion or deforestation.</p> <p>Damage to water management and other urban infrastructure.</p> <p>Slum dwellers/people in temporary settlements are often heavily affected.</p>	<p>Disaster-induced migration to urban areas and damage to urban infrastructure increase the number of slum dwellers without access to basic services and exacerbate poverty.</p>
<b>8: Develop a global partnership for development</b>	<p>Impacts on programmes for small island developing states (e.g. tropical storms, tsunamis).</p>	<p>National and international impacts on commitment to good governance, development and poverty reduction.</p>
<b>ALL MDGS</b>		<p>Reallocation of resources—including official development assistance—from development to relief and recovery.</p>

Source: UK-DFID 2004.

including poor urban development, overdependence on certain livelihoods and ecosystem degradation and impending climate change impacts (UNISDR 2011a). Although important advances continue to be made in reducing disaster risks, the impact of disaster situations is still considerable (see Figure 2). As illustrated in Figure 1, almost 90 percent of deaths occur with disasters of hydro-meteorological origin (originating from meteorological, hydrological or climate phenomena) (Carvajal-Escobar et al. 2008, UNESCO 2012).

1C. Climate change effects and disasters can be mutually reinforcing and exacerbating. Climate change has the potential to contribute to extreme weather and climate events such as tropical cyclones, floods and heat waves by increasing their intensity and frequency (Parry et al. 2007). The adverse impacts of climate change on livelihoods and ecosystems have the effect of diminishing communities' adaptive capacities and increasing their vulnerability to disasters (UNISDR 2008). These dual threats will decrease communities' capacity to cope with shifts, hazards and shocks, especially in poor developing countries (UNISDR 2011a).

2. Underdeveloped countries tend to be disproportionately exposed to climate-related disaster risks; the Asia-Pacific region is home to many of the world's disaster risk hotspots.

2A. Exposure to climate-related disaster risks is a function of, among other things, lack of resilience and limited capacity to absorb disaster situations. In general, small island developing states, land locked developing countries and least developed countries have diminished capacity to absorb and recover from disaster impacts (Corrales and Miquelena 2008, Noy 2009). Data shows that in high-income Asia-Pacific countries, about 1 in every 1,000 people were affected by disasters and 1 in 1 million died annually from 2001 to 2010. In contrast, in low-income countries in the region during the same time period nearly 30 in 1,000 people were affected and 52 in 1 million people were killed (UNESCAP 2011).

2B. The Asia-Pacific Region is highly prone to disasters. The region has been hit by numerous extreme hazards, including earthquakes, tropical cyclones, severe floods and combinations of such events. On the global scale, the region accounted for 90 percent of those affected by natural disasters, 65 percent of natural-disaster related deaths and 38 percent of disaster-related economic damages between 2001 and 2010 (see Table 2) (UNESCAP 2011). In the last decade, natural disasters claimed the lives of more than 70,000 people every year in the Asia-Pacific region (see Table 3). It is expected that climate change will intensify existing risk patterns in the region (UNISDR 2010). The increased frequency and severity of disasters will serve as a constant reminder of the human face of climate change.

**Table 2: People killed and affected by disasters per year, 2001-2010, by region**

<b>Region</b>	<b>Killed (Number per annum)</b>	<b>Affected (Thousands per annum)</b>
<b>Africa</b>	5,874	14,919
<b>North America</b>	427	2,069
<b>Asia-Pacific</b>	73,252	204,350
<b>Europe</b>	8,114	539
<b>Latin America and the Carib.</b>	24,650	5,805

Source: UNESCAP 2011.

**Table 3: Large disaster events in select countries**

<b>Popular Name</b>	<b>Countries affected</b>	<b>Date of Event</b>	<b>Type of hazard</b>	<b>Number of death</b>	<b>Number of affected</b>	<b>Damages USD</b>
<b>Tropical Cyclone (Nargis)</b>	Myanmar	2 May 2008	Tropical cyclone	138,366	2,420,000	4 billion
<b>Mumbai floods</b>	India	26 July 2005	Flood	1,200	20,000,055	3.3 billion
<b>South Asian tsunami</b>	India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka, Thailand	26 Dec 2004	Earthquake & tsunami	226,408	2,321,700	9.2 billion

Source: IFRCRCS 2009.

3. Climate-related disasters tend to more adversely affect the poorest and the most marginalized groups.

**3A.** Though generally ruinous to lives and livelihoods in the communities that they strike, disasters tend to disproportionately impact particular demographics. As noted, this is due to the fact that the determinants of disaster risk (beside the severity of the hazard) also include ‘adaptive capacity’, the ability of communities/people to cope with the hazard (UNISDR 2011b). The poor are likely to live under circumstances that make them less likely to be able to withstand disasters. For example, poor households are likely to be located in areas where transportation is scarce or costly, which constrains their mobility in disaster situations; poor families are likely to be illiterate and may not have access to telephones, radios or television, which limits their access to proper and timely information about impending disasters or evacuation plans; and poor households are likely to be situated in impoverished neighbourhoods, where houses are poorly constructed, which compounds their vulnerability in disaster situations (USAID 2000).

**3B.** Disasters tend to have harsher impacts on women and girls. This is due to a combination of factors that leaves females more exposed to the negative effects of disasters, such as diminished ability to run or climb trees quickly enough to avoid floodwaters, restrictive clothing that impedes their movement, responsibilities to care for children, lower levels of nutrition and lower levels of access to information and resources to avoid and recover from disasters (Neumayer and Plumper 2007). Several studies have shown that disaster mortality rates are often higher for women than for men due, in large part, to gendered differences in vulnerability and the ability to cope with such situations (see Part V of this Module) (Ikeda 1995, Neumayer and Plumper 2007, Oxfam 2005). This disproportionate vulnerability to the impacts of disasters is primarily due to a combination of imbalances in economic, social and political power in the Asian-Pacific region (see paragraph 4C of this Module for more information).

**3C.** Notwithstanding gender-based vulnerabilities, women possess unique skills and knowledge as a result of their household and natural resources management responsibilities that, if deployed properly, would support disaster risk mitigation and preparedness. Studies have consistently shown that gender equality and women’s empowerment are crucial to the success of overall development, including environmental sustainability and the achievement of MDGs (UNDP 2011; World Bank 2010c, 2011b), as well as for much needed adaptation to the adverse effects of climate change, including weather and climate-related disasters (see Part V of this Module) (Caravajal-Escobar et al. 2008, Hislop et al. 2011).

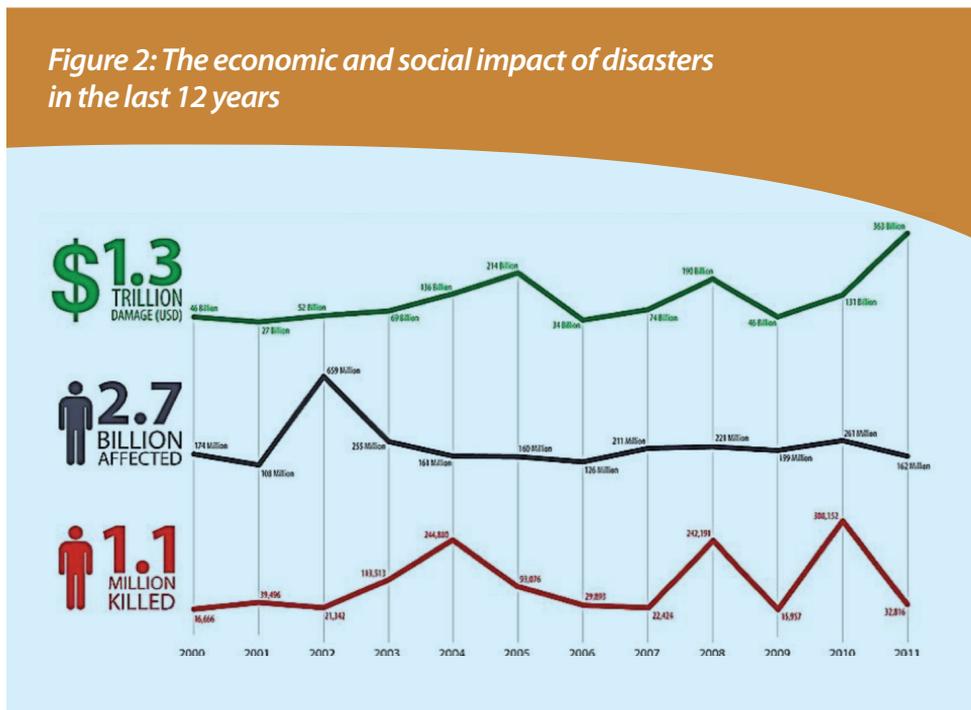
## v Women and disasters: risks and opportunities

**Learning objective: Identify gender-based differentiated vulnerability to disasters as well as the positive contributions of women to disaster risk reduction and management**

- Weather and climate-related disasters continue to take an enormous economic and human toll on communities; women bear the brunt of such disasters.

4A. Part IV discussed how the frequency and severity of disasters are continuing to increase and that climate change is a major factor in this higher incidence. As a 2008 EU study noted, “the number and magnitude of disasters are currently increasing. Since 1975, the number of disasters has risen from around 75 to more than 400 a

**Figure 2: The economic and social impact of disasters in the last 12 years**



Source: UNISDR 2012.

year. This increase in disasters is almost entirely related to weather-related disasters: over the last three years hydro-meteorological disasters increased by more than 100%, from about 100 in 2004 to more than 200 in 2006.” (European Commission 2008) These weather and climate-related disasters have devastating impacts on the lives and livelihoods of millions. Figure 2 provides staggering numbers that underscore the severity of the economic and human toll of disasters in the last 12 years.

**4B.** Empirical evidence shows that women—particularly poor women—suffer a great deal in loss of life and property in disaster situations (Caravajal-Escobar et al. 2008). For example, disaster mortality rates are higher for women than for men. The female fatality rate was 90 percent of the 140,000 people killed in Bangladesh in the 1991 cyclone disaster; 61 percent of the deaths from Cyclone Nargis in Myanmar; and 55 to 70 percent of the Banda Aceh tsunami deaths (the female fatality rate in one of the worst affected districts, Kuala Cangko, was 80 percent) (Castañeda and Gammage 2011, WEDO 2008).

**4C.** Gender-based vulnerability and exposure to disaster risk is linked to existing social, economic and political imbalances in society.

➤ **Physical location:** Women tend to form the majority of the population in rural areas as men move to urban areas for work. Predominantly subsistence and smallholder farmers, women’s livelihoods tend to be more dependent on natural resources. They tend to work and live on marginal and less productive areas, such as on hillsides and river embankments that are prone to soil erosion and flooding, and therefore are at risk of losing their source of livelihood. Their lower economic

### *Box 3: The differential gender impacts of hazards*

*Following the 1991 cyclone and flood in Bangladesh, women’s death rate was almost five times higher than men’s. Warning information was transmitted by men to men in public spaces, but was rarely communicated to the rest of the family. As many women are not allowed to leave the house without a male relative, they perished waiting for their relatives to return home and take them to a safe place.*

*Moreover, as in many other Asian countries, most Bengali women have never learned to swim, which significantly reduced their survival chances during the flood.*

Source: Röhr 2006.

## Box 4: Disaster and gender statistics

- *Neumayer and Plümper analysed disasters in 141 countries and found that, when it came to deaths, gender differences were directly linked to women's socioeconomic status; in societies where socioeconomic status for women is higher, disasters caused similar number of deaths in both sexes.*
- *Discrepancies in female deaths result from existing inequalities. For example, boys can be given preferential treatment during rescue efforts and, following disasters, both women and girls tend to suffer more from shortages of food and economic resources (Neumayer and Plümper 2007).*
- *Studies show that women and children are 14 times more likely than men to die during a disaster (Peterson 2007).*
- *In 1991, during the cyclone disasters in Bangladesh, of the 140,000 people who died, 90 percent were women (Ikeda 1995).*
- *More women than men died during the heat wave that affected Europe in 2003. In France most deaths were among elderly women (Pirard et al., 2005).*
- *During the emergency caused by hurricane Katrina in the United States, most of the victims trapped in New Orleans "were Afro-American women with their children," the poorest demographic group in that part of the country (Hartmann et al. 2006).*
- *In Sri Lanka, it was easier for men to survive during the tsunami because swimming and climbing trees is mainly taught to boys (Oxfam 2005).*
- *Disasters increase women's exposure to domestic and sexual violence; they sometimes even avoid using shelters for fear of being sexually assaulted (Alam et al. 2005).*
- *Nutritional condition is one determinant of the capacity to deal with disasters (Cannon 2002). Women are more likely to suffer from malnutrition, particularly in cultures with food hierarchies. This is also impacted by the specific nutritional needs of pregnant or breastfeeding women.. For example, in south and south-east Asia, 45 to 60 percent of women of reproductive age are below their normal weight and 80 percent of pregnant women have iron deficiencies. In sub-Saharan Africa, women lift much heavier loads than men but consume fewer calories because the culture prioritises men's nutritional needs.*
- *In some cases, gender differences also increase men's mortality in disaster situations. Many men are exposed to risky situations and even die because they believe that by being the 'stronger sex' they need not take precautions and are expected to take heroic rescue action. For example, there were more immediate deaths among men when hurricane Mitch struck Central America, not only because they were engaged in open-air activities, but because they took fewer precautions when facing risks (Bradshaw 2004).*
- *Extreme weather events often create conditions conducive to outbreaks of infectious diseases; heavy rains produce insect breeding grounds and contaminate clean water sources, whereas drought can cause fungal spores and spark fires. Women, especially expectant mothers, are highly vulnerable to water-borne diseases, thermal and other extreme events.*

Source: IUCN, see [http://cmsdata.iucn.org/downloads/disaster\\_and\\_gender\\_statistics.pdf](http://cmsdata.iucn.org/downloads/disaster_and_gender_statistics.pdf).

status tends to prevent them from avoiding or recovering from risk. For example, poor women in Bangladesh did not have the capacity and resources to move to higher grounds when the local river flooded (Aguilar et al. 2009).

➤ **Economic imbalances:** Women have unequal control over and access to economic resources (e.g. capital, credit, labour, land) relative to men, mainly due to political marginalization and discriminatory legal practices. Similarly, women tend to have limited opportunities for employment, education, training and career advancement, which restricts their ability to improve their economic situation and leads to lower literacy levels and social status (Cheema and Rajivan 2011; Dankelman 2010; FAO 2011; Levin 2011; Oxfam 2010; United Nations 2009; World Bank 2011a, 2011b ). The cumulative effect of such constraints is that women tend to be more vulnerable to weather and climate-related disasters (Oxfam 2010).

➤ **Social imbalances:**

Cultural norms can have limiting effects on women in ways that worsen their vulnerability to disaster risk (Röhr 2006, World Bank 2010b). In some instances, dress norms may restrain their mobility, potentially exposing them to dangers during disasters such as floods. Further, survival skills vital to some disaster situations (e.g. tree climbing, swimming) are taught primarily to boys.

Culturally sanctioned norms that require women to be escorted in public by male relatives can put women's lives at risk in disaster situations. For example, during the recurrent floods in Bangladesh, many women drowned because of their refusal to leave their homes alone (USAID 2000). Similar restrictions on public space may lead to diminished access to information that could put women in harm's way during natural disasters. For example, women may not receive early warning information transmitted to men in public spaces (Dankelman 2010, World Bank 2010b).



➤ **Education and information imbalances:** Women and girls experience higher levels of illiteracy. Of the 793 million illiterate people in the world, two-thirds of them (508 million) are women. Globally, there are still more boys than girls enrolled at primary and secondary levels; three-fifths of the 115 million children who do not go to school are girls (UNESCO 2009, 2012). After a disaster or during periods of shock or stress, girls are often forced to drop out of school to help with chores in the house or to save money (in some countries this is also true for boys) (Alam et al. 2005, World Bank 2012). Access to information, education and communication is critical in order to benefit from early warning systems to reduce the impact of floods, droughts, hurricanes, tsunamis and other disasters. Women's lower literacy levels make them less likely to respond to written early warning announcements and instructions; poor education leads to less involvement in decision-making and less representation in disaster response organizations and

### *Box 5: Gender dimensions of early warning systems*

*The regionally diverse examples of early warning systems below present replicable approaches that can be implemented in the Asia-Pacific region as well as demonstrate the varying ways such systems can be gender sensitive.*

*In rural communities of El Salvador, women were taught how to use radios to report on rising water levels. This led to more effective early warning information for the whole community (Enarson and Fordham 2001).*

*In Nicaragua, during Hurricane Mitch in 1998, one community, La Masica, reported no hurricane-related deaths. This result was attributed to gender-sensitive community education on disaster preparedness and early warning systems, which had occurred six months prior to the hurricane. While both women and men assisted in disaster management activities, women ended up being the ones within the community who monitored the early warning system that made fast evacuation possible during the hurricane (Aguilar 2007).*

*Women have specific disaster warning information needs. A study in South Africa found that women farmers prefer seasonal climate forecast information to be relayed by extension workers or through schools as opposed to the radio, while men preferred radios since they have greater access as well as more time to listen (Kinoti 2008).*

**Table 4. Gender-based differentiation in disasters and vulnerability: implications for women from various regions around the world**

<b>Condition/situation</b>	<b>Specific implications for women</b>	<b>Examples</b>
<b>Direct impacts of sudden-onset disasters (e.g. floods, cyclones, tsunamis, mud slides)</b>	<p>Women are at greater risk of injury and death due to societal restrictions and gender roles.</p> <p>Swimming is not a skill girls and women are encouraged to learn in some cultures.</p> <p>In some regions, women's clothing limits their mobility.</p> <p>In some societies and cultures, women cannot respond to warnings or leave the house without a male companion.</p> <p>Loss of crops and livestock managed by women (with direct detriment to family food security).</p>	<p>More women than men die from disasters. Statistics from past disasters, including the 2004 Indian Ocean tsunami and the 1991 Bangladesh cyclone, have showed that women are over-represented in mortality rates.</p> <p>Due to floods in Nepal in 2009, women reported a loss of livestock and other agricultural resources, and as such were not able to feed themselves or their families.</p>
<b>Impacts of slow-onset disasters (e.g. drought, desertification, deforestation, land degradation)</b>	<p>Increased workload to collect, store, protect and distribute water for the household—a responsibility that typically falls entirely to women.</p> <p>Increased domestic workload to secure food.</p> <p>Increased numbers of women-headed households due to men's migration.</p> <p>Diminished access to collecting food, fodder, wood and medicinal plants—a responsibility that typically falls entirely to women.</p>	<p>More women than men rely on forest-based products to sustain households.</p> <p>Up to 80 percent of the population of some developing countries rely on traditional medicine as their primary source of health care.</p> <p>Women often have a more specialized knowledge of wild plants used for medicine than men.</p>
<b>Less access to early warnings, and lower ability to respond</b>	<p>Warnings in many cases do not reach women.</p> <p>Women lack adequate awareness of how to act on warnings.</p> <p>Women lack lifesaving skills such as swimming and climbing.</p> <p>Women tend to take the responsibility of carrying children and the elderly to safety.</p>	<p>During the 2004 tsunami, more women died than men. For example, in Indonesia and Sri Lanka, male survivors outnumbered female survivors by 3 or 4 to 1.</p>

**Table 4. (cont-d) Gender-based differentiation in disasters and vulnerability: implications for women from various regions around the world**

<b>Condition/situation</b>	<b>Specific implications for women</b>	<b>Examples</b>
<b>Lower land and other asset ownership</b>	<p>Less control over production and markets.</p> <p>Less ability to adapt to ecological changes, resulting in crop failure.</p>	<p>Less than 10 percent of women farmers in India, Nepal and Thailand own land.</p> <p>In Malawi, the value of assets owned by male-headed households is more than double that of female-headed households. Male-headed households are more likely to own agricultural assets.</p>
<b>Lower income</b>	<p>Greater vulnerability in the face of shocks such as food shortages and crop failures.</p>	<p>Women earn only 70 to 80 percent of men's earnings in both developed and developing countries.</p> <p>Women have less access to secure and better-paid jobs in the formal sector than men. They are mostly occupied in the informal sector, making less money and with less employment security.</p>
<b>Lower levels of education</b>	<p>Hampers women's access to information and limits their ability to prepare for and respond to disasters.</p>	<p>Of the 793 million illiterate people in the world, two-thirds are women.</p>
<b>Lower levels of participation in decision-making bodies</b>	<p>Women's capacities are not applied, their needs and concerns are not voiced and they are overlooked in policies and programmes.</p>	<p>Women are poorly represented in decision-making bodies.</p> <p>Sociocultural norms and attitudes bar women's participation in decision making.</p>
<b>Poor access to resources</b>	<p>Women suffer inequitable access to markets, credit, information and relief services, resulting in less ability to recover from disaster losses.</p>	<p>Analysis of credit schemes in five African countries found that women received less than 10 percent of the credit given to men.</p> <p>Women face more difficulties accessing credit, as they often do not possess assets for collateral.</p>

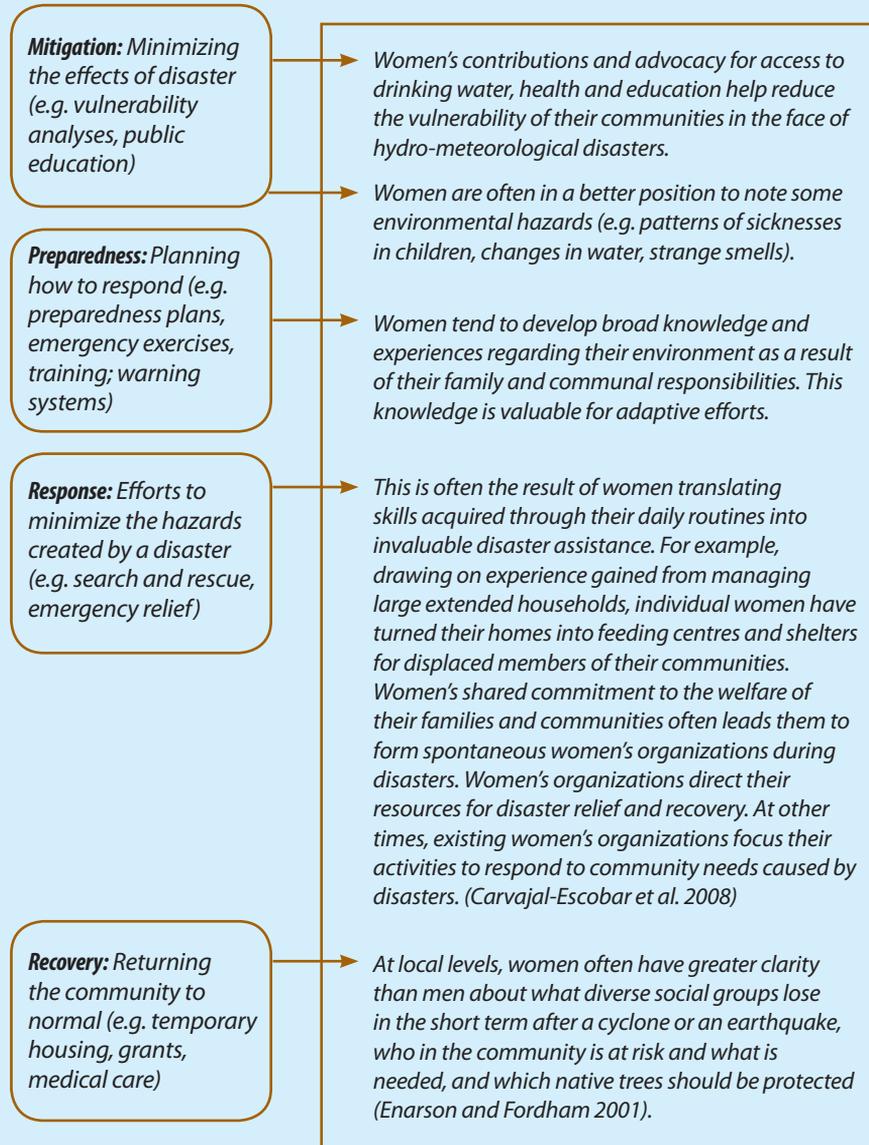
Source: Adapted from UNISDR et al. 2009.

training; and lower levels of access to communications technologies decreases their access to the notification systems and makes them reliant on male family members for information. These factors lower women's capacity to respond to disasters in comparison to men (Aguilar et al. 2009).

➤ **Political imbalances:** Women are often poorly represented at all levels of formal decision-making in society. Such political marginalization is one of the root causes of the socio-economic hardships that women face, which also contributes to their vulnerability to climate change and disaster risks. This power imbalance is in many cases sanctioned by law. A recent study by the World Bank, for example, indicates that 103 out of 141 economies studied impose legal differences on the basis of gender in some fashion, with the net effect of reducing women's economic opportunities (World Bank 2011a).

5. Women often play a substantial role in mobilizing communities during different phases of the disaster risk-management cycle. The schematic below presents some examples of how women could benefit their communities' disaster risk reduction and management in the context of the four phases of a disaster.

**Figure 3: Positive contributions of women in disaster risk reduction and disaster risk management**



## VI Integrating gender perspectives in disaster reduction strategies

**Learning objective: Outline women's needs and positive contributions to disaster adaption as well as solutions for gender-conscious disaster risk reduction and management**

6. Prudent policy and planning for reducing and managing climate-related disaster risks would save lives and be a useful tool for advancing general socio-economic development.

As discussed in Part V, climate-related disasters could undermine gains made in development and MDG achievement. Proper disaster risk reduction and management strategies can reduce some risks to human life and property, ultimately benefiting society as a whole. Because policies and actions focused on climate change adaptation and disaster risk reduction address similar concerns, including guaranteeing sustainable development, it is important to cultivate synergies and complementarities between the two. Table 5 provides an example of how disaster risk reduction could help cultivate gains across the MDGs.



### Module 2 - Adaptation

7. From the perspective of gender equality and women's empowerment, any effort addressing policy needs to be cognizant that disasters can reinforce, perpetuate and increase gender inequities and that women's contributions greatly enhance disaster reduction and management policies and actions.

#### *Disaster risk reduction*

*Disaster risk reduction is the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment and the improved preparedness for adverse events (UNISDR 2008).*

## Gender mainstreaming

*Gender mainstreaming is “the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women’s as well as men’s concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of all policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality.”*

Source: ECOSOC 1997.

7A. Women and girls are not inherently predisposed to disaster risks; their heightened exposure to disaster risk is attributable to inequitable social structures and gender-blind policies and actions across scales. To address the gender imbalances that create and/or contribute towards such risks, concerted effort needs to be exercised through appropriate social, political and economic policies and actions. The Hyogo Framework for Action 2005–2015 (adopted in Kobe, Japan, in 2005), which aims to reverse this increase in global disaster risk by substantially reducing disaster losses and by building nations and communities’ resilience to disasters places a special emphasis on the need to address the gender dimensions of disasters. The Framework urges that “a gender perspective should be integrated into all disaster risk management policies, plans and decision making processes, including those related to risk assessment, early warning, information management, and education and training.” (United Nations World Conference on Disaster Reduction 2005) This is in affirmation of the position taken by the international community at the 23rd special session of the General Assembly on the topic ‘Women 2000: gender equality, development and peace for the twenty-first century’, which adopted a similar principle.

7B. Gender equality is a fundamental human right. It is also a potent means for development, poverty alleviation and eradication and environmental sustainability. Mainstreaming gender in policy processes, programmes and projects can ensure that they benefit women and men as opposed to marginalizing women. Mainstreaming gender addresses imbalances and puts women’s unique knowledge and skills to use. Mainstreaming gender in climate change projects, policies and planning can help achieve the twin goals of advancing social policy (including gender equality) and

**Table 5: What disaster risk reduction can contribute towards meeting the MDGs**

<b>MDG</b>	<b>Examples of what risk reduction can contribute</b>
<p><b>1. Eradicate extreme poverty and hunger</b></p>	<p><i>Disaster risk reduction and MDG1 are interdependent. Reducing livelihood vulnerability to natural hazards is key to eradicating income poverty, improving equity, improving food security and reducing hunger. Reducing disaster impacts on the macro-economy will promote growth, fiscal stability and state service provision, with particular benefits for the poor.</i></p> <p><i>Disaster risk reduction and MDG1 share common strategies and tools. This overlap means that giving development more security from natural hazards can be very cost effective.</i></p>
<p><b>2. Achieve universal primary education</b></p>	<p><i>In hazard-prone areas, the case for building schools and encouraging attendance becomes much stronger if buildings are safe and students and teachers are trained in emergency preparedness. Promoting safer structures may encourage better maintenance even in non-disaster times.</i></p> <p><i>Reduced vulnerability will allow households to invest in priorities other than mere survival. Education is often a high priority. Girls (as 60 percent of non-attendees) may benefit disproportionately.</i></p>
<p><b>3. Promote gender equality and empower women</b></p>	<p><i>Better risk reduction will help protect women from the disproportionate effects of disaster impacts.</i></p> <p><i>Collective action to reduce risk by households and communities provides entry points for women (and other marginalized social groups) to organize for other purposes too, providing a catalyst for economic and social empowerment.</i></p>
<p><b>4. Reduce child mortality</b></p>	<p><i>Disaster risk reduction will help protect children from direct deaths and injuries during a hazard event. Following a hazard event, disaster risk reduction will lower mortality from diseases related to malnutrition, limited access to potable water and poor sanitation.</i></p> <p><i>Health infrastructure and personnel in hazard-prone areas will be better protected. This may also promote better infrastructure maintenance.</i></p>
<p><b>5. Improve maternal health</b></p>	<p><i>Disaster-related illness and injury will be reduced.</i></p> <p><i>Improved household livelihood and food security will lower women's workloads and improve family nutrition.</i></p> <p><i>Health infrastructure and personnel in hazard-prone areas will be better protected. This may also promote better infrastructure maintenance.</i></p>

**Table 5 (cont-d): What disaster risk reduction can contribute towards meeting the MDGs**

<b>MDG</b>	<b>Examples of what risk reduction can contribute</b>
<b>6. Combat HIV/AIDS, malaria and other diseases</b>	<p>Public health risks (e.g. from flood waters) will be reduced and nutrition and health status improved, boosting resistance to epidemic disease.</p> <p>Fewer disasters will free up social sector budgets for human development.</p> <p>Livelihood security will reduce the need to resort to work in the sex industry.</p> <p>Community organizations and networks working in disaster risk reduction are a resource for family and community health promotion (and vice versa).</p>
<b>7. Ensure environmental sustainability</b>	<p>Reduced disaster-related migration into urban slums and reduced damage to urban infrastructure will improve urban environments.</p> <p>An emphasis on governance for risk reduction and more secure livelihoods will help curb rural and urban environmental degradation.</p> <p>Risk reduction partnerships that include community-level actors and concerns will offer more sustainable infrastructure planning, and enable expansion of private sector contributions to reducing disasters.</p> <p>Housing is a key livelihood asset for the urban poor. Disaster risk reduction programmes that prioritize housing will also help preserve livelihoods.</p>
<b>8. Develop a global partnership for development</b>	<p>Creating an international governance regime to reduce risk from climate change and other disasters will help overcome disparities in national negotiating strength.</p> <p>Efforts to build equal global partnerships for risk reduction will have particular relevance for small island developing states and heavily indebted poor countries.</p> <p>Disaster risk reduction initiatives could promote better public-private partnerships.</p>
<b>ALL MDGS</b>	<p>Reducing disaster impacts will free up resources (including official development assistance) to help meet MDG targets.</p>

Source: UK-DFID 2004.

ensuring greater returns on mitigation and adaptation investments. Box 6 provides a checklist of activities that are useful in incorporating gender perspectives into climate change responses.

7C. There are a number of analytical tools and methods for mainstreaming gender. Some of these tools and methods have broad application, while others have specific relevance (e.g. disaster risk reduction and management, adaptation and energy). Some focus on vulnerability and impact assessment and stakeholder analysis and management; others on decision-making in adaptation and climate risk communication. Box 8 demonstrates a country-level experience with gender mainstreaming activities within a disaster management project in the Asia-Pacific region.

### *Box 6: Steps for gender mainstreaming in disaster risk reduction*

- *Include gender perspectives and gender assessment in disaster reduction efforts at the national, regional and international levels—including in policies, strategies, action plans and programmes—using sex-disaggregated data;*
- *Analyse climate change data (e.g. on desertification, floods, droughts, deforestation) with a gender-sensitive perspective;*
- *Take gender-conscious steps to reduce the negative impacts of natural disasters on women, particularly in relation to their critical roles in rural areas in natural resources management and provision of water, food and energy;*
- *Increase women's participation and representation in all levels of decision-making;*
- *Include women's traditional knowledge and perception in the analysis and evaluation of the characteristics of key disaster risks, coping and response strategies;*
- *Ensure that women are enabled to act as agents of change at all levels of disaster preparedness, including early warning systems, education, communication, information and networking opportunities;*
- *Build the capacity of national and local women's groups and provide them with platforms to be heard and to help manage recovery efforts;*
- *Consider women's level of access to technology and finances in times of disaster;*
- *Include gender-specific indicators to monitor and track progress on gender equality and recovery targets;*
- *Work with women's organizations that have information, knowledge, experiences, networks and resources to increase resilience in the face of disasters;*
- *Work with and build the capacities of existing women's groups;*
- *Use democratic and participatory initiatives to ensure women and girls' participation; and*
- *Respect and build women's capacities. Avoid overburdening women who already have a very heavy workload and many family responsibilities.*

### *Box 7: Critical factors for integrating gender concerns into post-disaster reconstruction*

- *Provide detailed assessments that analyse gender issues in the local context, including traditions of land ownership;*
- *Balance housing assistance with community traditions and norms;*
- *Ensure that implementation teams include sufficient female staff participation to deal with women's issues and women-headed households (particularly in Muslim communities);*
- *Accommodate needs of vulnerable households and help them gain access to assistance (filling in required documents, providing culturally sensitive housing designs developed in a participatory manner, understanding minimum construction standards, opening bank accounts and nominating support persons to help with construction); and*
- *Communicate project activities and entitlements with all community members, regardless of socio-economic status.*

Source: Hidellage and Usoof 2010.

### *Box 8: Gender mainstreaming experiences in climate initiatives—Thailand*

*UNDP Thailand is working to enhance women's empowerment in the disaster management planning process, particularly at the community level. In traditional Thai society, women play a very important role in the household and commercial areas, but when it comes to planning, it is the men who make decisions. In UNDP community-level projects, particularly those on disaster risk reduction, work has been targeting women and has involved women in self-help groups and microfinance. There should be room for change in discussing gender equality or empowerment, as gender roles have shifted in many cases (particularly in relation to disasters). What is important is how to address this transformation of gender roles, such as through regional examples of good practice. There is much emphasis placed on development at the grass-roots level to identify who participates and who benefits. It was stressed that different cultural and political contexts in each country require different approaches.*

Source: UNDP 2009.

8. Disaster risk reduction and adaptation are likely to be more effective if and when they are anchored in development planning (UNISDR 2011b). This is primarily because the risk factors associated with climate-related disasters are a result of development processes that expose people and assets to climate-related hazards and do little to reduce their vulnerabilities. Assorted policies need to be put in place to proactively reduce vulnerabilities, increase resilience and enhance capacity to manage risks, especially to women and other exposed demographics.

**8A.** Resources, including climate finance for adaptation and disaster risk reduction, should be properly used to strengthen the risk-governance capacities of those countries most challenged to adapt (UNDP 2010, 2011). In this regard, effort must be made to ensure that analysis and planning for disaster risk reduction capacity development is prioritized equitably for men and women. Similarly, budget allocation for disaster risk reduction implementation across scales and sectors should be prioritized for action that benefits women. In addition, financial risk-sharing schemes need to be gender-sensitive, accessible and appropriate to the needs and resources of both women and men facing disaster risk.



## Module 5 - Climate Finance

**8B.** Continuous effort is needed to progressively tackle the underlying risk factors that emanate from skewed processes that undermine women. Among other things, attempts should be made to promote diverse livelihoods options for women in order to increase their resilience to hazards and to ensure that risks faced by women are not exacerbated by inappropriate development policies and practices.

**8C.** Women need to be meaningfully involved in identifying and monitoring risks, including developing risk and hazard maps and data, identifying gender-specific aspects of risk and vulnerability and crafting the responses to risk (including establishing early warning systems with gender-sensitive communication alerts, media and technology).

**8D.** Disaster preparedness and response plans should take account of gender-differentiated vulnerabilities and capacities. Women must be fully involved in community disaster management committees, disaster response drills and related activities in ways that underscore the importance of women as key agents of change.

## VII Conclusion

Climate change and disaster risk are development challenges that hamper societies' resilience. The increase in intensity and recurrence of climate-related disasters over the past few years shows that these challenges are complex. In the absence of effective disaster risk reduction policy, climate-related disasters will have negative development implications and undermine the gains made by the community of nations towards meeting MDG targets. Effective disaster risk reduction strategies need to be cognizant of these broader interrelationships of hazards and development processes across scales and sectors. It is equally imperative that such strategies address asymmetries in vulnerability, including women's and other vulnerable demographic groups' disproportionate exposure to disaster risk.

Disaster risk reduction policy and strategies need to be inclusive in ways that tap into the knowledge, skills, needs and concerns of both women and men exposed to risks. Women play a key role in their communities in reducing disaster risks and coping with the vagaries of the changing climate. Their knowledge and experience should be taken into account when planning disaster risk reduction and adaptation (recovery) processes for vulnerable communities. They face a range of economic, sociocultural, geographical, educational, informational and political disadvantages that need to be taken into account when crafting disaster risk reduction and recovery policies and programmes. A mix of tools and methods should be employed to mainstream gender in these efforts at all levels, with women and women's organizations represented in every step of the process. Efforts should be made to address systemic issues that drive the vulnerability of communities and weaken their resilience.

# Appendix A. Case studies

## Case study 1

### *Good practices; gender impacts of land titling in post-tsunami Aceh, Indonesia*

Source: World Bank (2010) Study on Gender Impacts of Land Titling in Post-Tsunami Aceh.  
In <http://siteresources.worldbank.org/INTEAPREGTOPSOCDEV/Resources/12680GNEAPDisaster.pdf>.

The objectives of the Reconstruction of Aceh Land Administration System project, which was supported by the Multi-Donor Trust Fund for Aceh and North Sumatra, were to recover and protect land ownership rights of the people in Tsunami-affected areas and to rebuild the land administration system. The project included a Community-Driven Adjudication process to land titling, which utilized community land mapping and community consensus on land parcel boundaries and inventory of land ownership. The government then used these elements in its land titling process. Four years after implementation, the project supported the issuance of 222,628 land title certificates to tsunami disaster survivors, their heirs or adjoining land owners. A total of 63,181 titles (about 28 percent of all titles distributed), were distributed to female owners, individually or as joint owners with their spouses.

## Case study 2

### *Gender Impacts of titling in men's and women's names in post-tsunami Tamil Nadu, India*

Source: World Bank Institute, Distance Learning Series: Gender Aspects of Disaster Recovery and Reconstruction—Case studies. <http://vl.worldbank.org/moodle/course/view.php?id=349&page=1140>  
In <http://siteresources.worldbank.org/INTEAPREGTOPSOCDEV/Resources/12680GNEAPDisaster.pdf>.

Following the 2004 Indian Ocean Tsunami, the recovery programme designed in Tamil Nadu presented an opportunity in the affected states to further improve women's property ownership. The general absence of land titles in some areas before the tsunami, both for men and for women, made it easier to incorporate gender considerations in assigning land and house ownership. In Tamil Nadu state, new property titles have been jointly registered in the name of the female and male heads of the family in projects that were financed with World Bank credit, while resale was not permitted to avoid the forcing of spousal signatures. The same practice was encouraged in the Pondicherry state.

### Case study 3

## *Women's recollection of the 2005 floods, Ban SopBor, Lao People's Democratic Republic*

More than 80 percent of flooding in Nongbok occurs in the floodplain of the Xaibangfai River. Seven villages in the district are particularly flood prone: Ban Namphou, Ban Phonesao Ear, Ban Pongkiew, Ban Saduea, Ban Sayphong, Ban SopBor and Ban Xamnady. The 2005 floods events in Nongbok had impacts across the district, affecting 71 out of 72 villages, 4,841 households and a total of 27,961 people. Compared to other districts in Khammouane Province, impacts on agriculture were particularly severe in Nongbok.

The floods inundated an estimated 10,500 hectares of paddy fields and 6500 hectares of crop areas. Almost 70 percent of the rice fields in Nongbok were severely damaged. Women in Ban SopBor reported that immediately before the 2005 flood event, the village experienced strong winds and heavy rain for up to three days. Before the onset of the floods, the Village Head issued an early flood warning to the villagers.

Women were actively involved in the early warning process and helped in disseminating the flood warning and other disaster-related information to the members of the household by doing a door-to-door information campaign in the village (World Bank, 2011).

### Case study 4

## *Indonesia's empowerment of female heads of households*

Sources: World Bank

[http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/](http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/INDONESIAEXTN/0,,contentMDK:22202412~menuPK:224605~pagePK:2865066~piPK:2865079~theSitePK:226309,00.html)

[INDONESIAEXTN/0,,contentMDK:22202412~menuPK:224605~pagePK:2865066~piPK:2865079~theSitePK:226309,00.html](http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/INDONESIAEXTN/0,,contentMDK:22202412~menuPK:224605~pagePK:2865066~piPK:2865079~theSitePK:226309,00.html).

Following the 2004 Indian Ocean Tsunami, the Female Heads of Households Empowerment Program, with support from the Japan Social Development Fund through the World Bank, was expanded to look at post-disaster recovery. The program evolved from the idea to document the lives of widows in conflict areas and give them access to resources in order to help them overcome their economic problems and trauma. A \$1.7 million grant was provided to fund a program on Support for Female Headed Household during Aceh Reconstruction. The number of direct beneficiaries was 5,000 persons from both women-headed household groups and other social groups. Efforts included capacity building and training, scholarships for more than 2,000 poor children and the reconstruction of houses and social facilities. By the end of 2008, 239 houses in Aceh and two social facilities had been rehabilitated or rebuilt.

## Case study 5

# *Integrating gender perspectives in disaster reduction strategies, Pakistan*

Source: USAID 2000.

“In rural Pakistan, the practice of segregating women from men has increased women’s vulnerability to natural disasters. Segregation leaves women dependent upon men for information about flood warnings and for access to disaster assistance.

Pattan, [a non-governmental organization] with a long history in development and disaster assistance, began work with flood-affected communities in 40 Pakistani villages in 1992. Pattan staff identified weaknesses in flood mitigation and preparedness programs, including an inadequate warning system, absence of community organizations, lack of community participation in flood response and failure to recognize how disasters affect women and men differently.

Pattan set out to improve community flood response by integrating disaster reduction strategies into development policies and projects and incorporating a carefully thought-out gender component into its disaster response program.

Pattan began by organizing forums to encourage community participation in projects addressing disaster preparedness, response and recovery. However, the practice of sex segregation prevented women from joining the forums in most villages. Women asked that Pattan organize parallel women’s forums. These forums soon became the primary vehicle for women’s representation and participation in disaster assistance projects. Under more routine circumstances, the initiative to organize women may have encountered resistance. However, because of the vital assistance that Pattan provided in the aftermath of the 1992 floods, the community was receptive to the NGO’s proposals. Male staff could not interact with women in the community, so Pattan recruited and trained female staff to ensure women’s needs were assessed and addressed. It also offered gender training for its staff and analyzed the gender impact of all of its programs. Women were responsible for distributing food, and households were registered in women’s names during distributions to ensure female-headed households and women in polygamous households received assistance.

Pattan also involved women in housing reconstruction. Traditionally, the house of a married couple was owned by the husband. However, Pattan persuaded communities to register houses constructed with project funds in the names of both wives and husbands. Before construction began, couples signed a contract stipulating that, in the event of divorce or separation, whoever remained in the house had to pay half its value to the former spouse. Interviews with the women revealed that home ownership had dramatically increased women’s status in their families and communities and increased their participation in decision making processes.”

## Case study 6

# *Empowering women through merging traditional knowledge with new technology, Totoya Island Fiji*

Source: Karen Bernard, UNDP Pacific Centre and Katarina Atalifo, GEF Small Grants Programme.

“Fiji is a Pacific [Small Island Development State] country comprised of two main islands and more than 300 tiny outer islands. One of these is remote Totoya island, part of the Lau chain of islands and located at about 900 kilometers’ distance from the main island of Viti Levu. There are three villages on the island, and the population has been shrinking from around 1000 people in 1986 to approximately 450 at present, with people emigrating to the mainland in search of economic opportunity, access to basic services and tertiary education. Totoya is a volcanic island, with mountainous areas as well as beaches, with houses located along the coasts and farms further inland on high ground. Families must climb steep, rocky slopes to reach their farms. The local economy is based predominantly on subsistence.

Over the past few decades the island’s landscape has been degraded significantly by human activity, such as burning down forests to clear space for agricultural plantations, in combination with climate change impacts. Coastal erosion has worsened as recurring floods routinely send floodwaters through houses, so local residents create an outlet inside their homes to channel the waters out. Rows of coconut palms have been washed away because of receding shorelines.

The island chiefs are all men and do not reside in the island, most reside in the capital city. Therefore, they make decisions from some distance, with little exposure to the daily challenges and struggles of life on Totoya.

Dr. Jimaima Lako grew up on Totoya island and is now a professor at University of the South Pacific in Suva, Fiji’s capital city. She has combined her insider perspective and concern for the way of life on the island with her scientific expertise to devise a comprehensive programme to address these concerns in a sustainable way. The programme focuses on land use planning and food security, with a strategy that seeks to retain valuable traditional practices while also leveraging the benefits of appropriate new technologies. One of her biggest concerns is the extent to which these local communities have become reliant on imported foodstuffs; these are not only low in nutrition, but also place a burden on household finances, as due to the cost of transport the prices of these items in Totoya are double the prices in Suva.

Transport of items to outer islands such as Totoya is becoming increasingly difficult, with small fishing vessels that brought merchandise over once a month now appearing only once every 2 to 3 months.

In the face of these threats to food security, Dr. Lako promotes import substitution—for example replacing soya bean oil with virgin coconut oil that can be produced locally, local fruit cordials to replace imported soft drinks and flours made from cassava to replace

imported white flour. In order to grow these crops which can then be processed into local foodstuffs, the impact of climate change and human activity on the arable land must necessarily first be considered.

As companies such as Nestle expand their markets in Totoya, and in fact in many remote Pacific islands, traditional knowledge on how to produce local nutritious food is being lost. In the Pacific, most of this knowledge is held and passed on to the next generation by women. Under gender roles on this Polynesian island, men plant the crops while women are in charge of the food processing and conservation once the crops are harvested. These roles are very much linked to gender identities, with the common perception that ‘you are not a man until you plant yams,’ with the latter considered a particularly prestigious crop.

In the past, these communities used to practice smoking, direct sun drying and salting as ways to conserve food for any eventual shortages. An integral part of the strategy that Dr. Lako is using involves retrieving and enhancing women’s role in processing and conserving foods, while factoring in the convenience of modern technology. Two solar dryers have been shipped to the island, and women are being taught how to make flour from cassava and breadfruit, to replace costly imported wheat flour. The dryers will also be used for drying root crops such as kumala, mango and eventually for drying seafood as well.

Women are being encouraged to plant small vegetable gardens near their houses to grow peanuts, tomato, cabbage and other crops. As it was observed that large quantities of soybean oil comprise the regular diet in these villages, women are being instructed in the production of virgin coconut oil, which was previously a mainstay on such islands. In order for all of these food items to be made, first the crops must be planted on soils that are suitable. Dr. Lako must persuade the local residents of the need to plan ahead in this sense, noting that ‘Fijian people are short term people - don’t tend to see things in the long term, they need to see the results of their work.’

The local women’s organization, the Sogosogo Vakamarama, is well organized but seeks assistance. The men in the community come together mainly informally in grog sessions.

Under the project, a log book is in place to organize and monitor usage of the solar dryers. Evidence from this log book shows that the main usage of the dryer to date is for yaqona, a mildly narcotic substance which is grown and sold by the men, but is unrelated to the food security objectives of the project which provided the dryers.

There is currently a shortage of men on the island due to emigration patterns, which means that not enough crops are being sown. Dr. Lako believes that ‘If men are not planting, we have to encourage women to plant.’ This requires attitudinal change however, as it implies significant social stigma. One observer noted, ‘if a women goes out to plant, the husband will never hear the end of it until the day he dies.’ There is even a popular local song on this topic.

This experience—which focuses on empowering women in their leading role in food security and modifying related gender roles—entails challenges, but also can serve as an innovative example that other outer islands in the Pacific may wish to replicate.”

# Appendix B. Learning tools

## Task 1: Factors influencing risks for women in disasters (breakout groups and plenary)

**Learning objective: Understand the factors that influence the vulnerability and exposure to disaster risk by women**



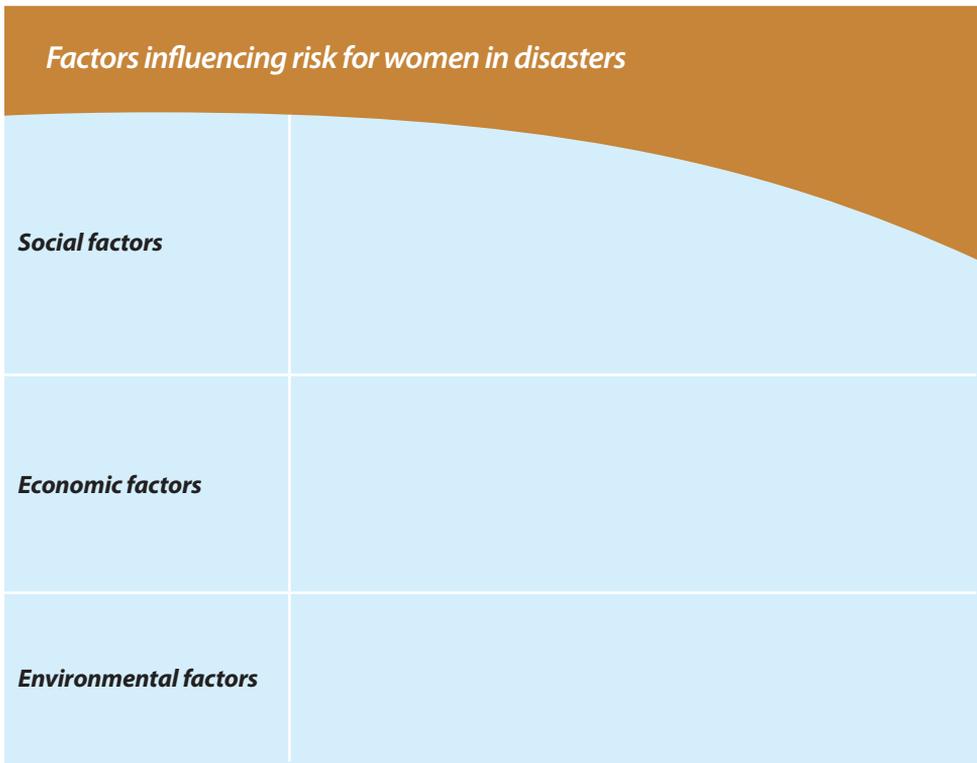
### Group activity on mapping gender-based disaster risks



30 minutes: group breakout discussions

15 minutes: presentations of findings (three presentations of 5 minutes each)

20 minutes: plenary discussion



### Notes to the facilitator

- Divide the participants into three groups; give each group a task and have the groups appoint their leader.
- Ask the groups to brainstorm—based on their local experiences—on the social, economic and environmental factors that exacerbate disaster risk to women. You may encourage the participants to add to or modify the factors listed in the table to suit their circumstances.
- Ask each group to present their findings to the plenary and, finally, encourage the participants to discuss what they have learned from the assignment.

## Task 2: Gender mainstreaming in disaster risk reduction (breakout groups and plenary)

*Learning objective: Appreciate the importance of gender mainstreaming in disaster risk reduction at the project level*



### Group activity on gender mainstreaming in disaster risk reduction Projects



40 minutes: group breakout discussions

15 minutes: presentation of findings (three presentations of 5 minutes each)

20 minutes: plenary discussion

### Notes to the facilitator

- Ask the participants to come up with a disaster risk reduction project and to think about the gender aspects that need to be considered at each stage of the project cycle.
- Encourage the participants (divided in groups) to make sure that the concepts and tools presented in the module are considered and reflected in their projects.
- Finally, ask the participants to discuss what they have learned from the assignment.

# References

- Aguilar, L. et al, 'Training Manual on Gender and Climate Change', published by the International Union for Conservation of Nature (IUCN), United Nations Development Programme (UNDP) and Global Gender and Climate Alliance (GGCA), San Jose, Costa Rica, 2009.
- Aguilar, L., 'Presentation at WEDO-CWWL Roundtable, September 21: How a Changing Climate Impacts Women', 2007.
- Alam, K., M.M. Ariyabandu, M.R. Bhatt, S. Balsari, I. Davis, K. Peiris De Costa and R. Schneider- Sliwa, 'Tsunami, Gender, and Recovery: Special Issue for International Day for Disaster Risk Reduction', 2005.
- Bradshaw, S., 'Socio-economic Impacts of Natural Disasters: A Gender Analysis', United Nations, Santiago de Chile, 2004.
- Cannon, T., 'Gender and Climate Hazards' in *Bangladesh Gender and Development*, 10:45–50, 2002.
- Carvajal-Escobar, Y., M. Garcia-Vargas and M. Quintero-Angel, 'Women's Role in Adapting to Climate Change and Variability', *Advances in Geosciences*, Issue 14, 277–280, 2008.
- Castañeda, I., and S. Gammage, 'Gender, Global Crises, and Climate Change', in Devaki, J., and D. Elson (Eds.), *Harvesting Feminist Knowledge for Public Policy*, SAGE Publications India Pvt Ltd, New Delhi, India, 2011.
- Cheema, H., and A. Rajivan, *Enforcing Rights and Correcting Wrongs: Overcoming Gender Barriers in Legal Systems*, UNDP, Asia-Pacific Regional Centre, Bangkok, 2011.
- Corrales, W., and T. Miquelena, 'Disasters in Developing Countries Sustainable Development: A conceptual framework for strategic action', 2008.
- Dankelman, I. (Ed), *Gender and Climate Change: An Introduction*, Washington DC: Earthscan, 2010.
- Enarson, E., and M. Fordham, 'From Women's Needs to Women's Rights in Disasters', *Global Environmental Change Part B, Environmental Hazards*, 3: 133–136, 2001.
- European Commission, 'EU Strategy for Disaster Risk Reduction in Developing Countries', Issue paper, 2008.
- Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor and P.M. Midgley (Eds.), 'Glossary of Terms', In *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation, A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change*, Intergovernmental Panel on Climate Change (IPCC), Cambridge University Press, Cambridge, UK, and New York, NY, USA, 2012, pp. 555-564.
- Food and Agriculture Organization (FAO), 'The State of Food and Agriculture', Rome, 2011.
- Government of the United Kingdom, Department of International Development (UK-DFID), 'Disaster Risk Reduction: A Development Concern (A scoping study on links between disaster risk reduction, poverty and development)', 2004, available at: [http://www.preventionweb.net/files/1070\\_drrscopingstudy.pdf](http://www.preventionweb.net/files/1070_drrscopingstudy.pdf).
- Hartmann, H., A. Jones-DeWeever, O. Sorokina and E. Williams, 'The Women of New Orleans and the Gulf Coast: Multiple Disadvantages and Key Assets for Recovery. Part II: Gender, Race, and Class in the Labor Market', Institute for Women's Policy Research Briefing Paper, 2006.
- Hidellage, V., and A. Usoof, 'Scaling-up people-centred reconstruction: Lessons from Sri Lanka's post-tsunami owner-driven programme', in Lyons, M., T. Schilderman, and C. Boano (Eds.), *Building Back Better: Delivering People-Centred Housing Reconstruction at Scale*, pp. 77–112, Warwickshire, UK: Practical Action Publishing Ltd., 2010.
- Hislop, L., C. Nellemann and R. Verma (Eds.), 'Women at the Frontline of Climate Change: Gender Risks and Hopes', A Rapid Response Assessment, UNDP, GRID-Arendal, 2011.

- Ikeda, K., 'Gender Differences in Human Loss and Vulnerability in Natural Disasters: A Case Study from Bangladesh', *Indian Journal of Gender Studies*, 2:2: 171–93, New Delhi: Sage Publications, 1995.
- International Federation of Red Cross and Red Crescent Societies (IFRCRCs), 'World Disasters Report 2009', 2009, pp. 174–180. See [www.ifrc.org/Docs/pubs/disasters/wdr2009/WDR2009-full.pdf](http://www.ifrc.org/Docs/pubs/disasters/wdr2009/WDR2009-full.pdf)
- Kinoti, K., 'Natural Disaster Reduction: Lessons on Empowering Women', Association for Women's Rights in Development, 2008, available at: <http://www.awid.org/eng/Issues-and-Analysis/Library/Natural-Disaster-Reduction-Lessons-on-Empowering-Women2>.
- Levin, K., 'World Resources 2010–2011: Decision Making in a Changing Climate—Adaptation Challenges and Choices', World Resources Institute, Washington DC, 2011.
- Neumayer, E., and T. Plumper, 'The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002', *Annals of the Association of American Geographers*, Issue 97, 2007.
- Noy, I., 'The Macroeconomic Consequences of Disasters', *Journal of Development Economics*, 88(2), 221–231, 2009.
- Oxfam, 'Gender and Disaster Risk Reduction: A training pack', 2011, available at: <http://www.oxfam.org.uk/resources/learning/gender/downloads/gender-drr-handouts-module1-040711-en.pdf>.
- Oxfam, 'Gender, Disaster Risk Reduction, and Climate Change Adaptation: A Learning Companion', 2010, available at: <http://www.gdnonline.org/resources/OxfamGender&ARR.pdf>.
- Oxfam, 'The Tsunami's Impact on Women', Oxfam Briefing Note, 2005.
- Parry, M.L., O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (Eds.), *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Intergovernmental Panel on Climate Change (IPCC), Cambridge University Press, Cambridge, 2007, pp. 869–938.
- Peterson, K., 'Reaching Out to Women When Disaster Strikes', Sorooptimist White Paper, 2007.
- Pirard P, Vandentorren S, Pascal M, Laaidi K, Le Tertre A, Cassadou S, Ledrans M., "Summary of the mortality impact assessment of the 2003 heat wave in France" in *Euro Surveill* 10 (7) ,2005.
- Röhr, U., 'Gender and Climate Change', *Tiempo*, Vol.59 (April), pp.3–7, 2006, available at: <http://www.tiempocyberclimate.org/portal/archive/pdf/tiempo59high.pdf>.
- United Nations Development Programme (UNDP), 'Ensuring Gender Equity in Climate Change Financing', 2011.
- UNDP, *Power, Voice and Rights: A Turning Point for Gender Equality in Asia and the Pacific, Asia-Pacific Human, Development Report*, New Delhi: Macmillan, 2010.
- United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), *Statistical Yearbook for Asia and the Pacific 2011*, 2011.
- United Nations Economic and Social Council (ECOSOC), 'United Nations Economic and Social Council Resolution 1997/2: Agreed Conclusions', 18 July 1997, 1997/2, available at: <http://www.refworld.org/docid/4652c9fc2.html>.
- United Nations Educational, Scientific and Cultural Organization (UNESCO), 'Hydro-metrological Hazards', website, 2012, available at: <http://www.unesco.org/new/en/natural-sciences/special-themes/disaster-preparedness-and-mitigation/natural-hazards/hydro-meteorological-hazards/>.
- UNESCO, 'The Global Literacy Challenge: A profile of youth and adult literacy at the mid-point of the United Nations Literacy Decade 2003–2012', 2009.
- United Nations Office for Disaster Reduction (UNISDR), Infographic: The Economic and Human Impact of Disasters in the last 12 years, 2012, available at: [http://www.unisdr.org/files/25831\\_20120318disaster20002011v3.pdf](http://www.unisdr.org/files/25831_20120318disaster20002011v3.pdf).

- UNISDR, 'Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons', Briefing Note 2, 2011a.
- UNISDR, 'Strengthening Climate Change Adaptation Through Effective Disaster Risk Reduction', Briefing Note 3, 2011b.
- UNISDR, 'Climate Change Adaptation and Disaster Risk Reduction Institutional and Policy Landscape in Asia and Pacific', 2010, available at: [http://www.unisdr.org/files/17250\\_t0236000045500climatechangeadaptati.pdf](http://www.unisdr.org/files/17250_t0236000045500climatechangeadaptati.pdf).
- UNISDR, 'Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons', Briefing Note 02, 2009.
- UNISDR, 'Climate Change and Disaster Risk Reduction' Briefing Note 1, 2008, available at: [http://www.unisdr.org/files/4146\\_ClimateChangeDRR.pdf](http://www.unisdr.org/files/4146_ClimateChangeDRR.pdf).
- UNISDR, 'The Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters', 2007, available at: <http://www.unisdr.org/eng/hfa/hfa.htm>.
- UNISDR, UNDP and International Union for Conservation of Nature (IUCN), 'Making Disaster Risk Reduction Gender-Sensitive Policy and Practical', Guidelines Published by UNISDR, UNDP and IUCN, Geneva, Switzerland, 2009.
- United Nations World Conference on Disaster Reduction, 'Report of the World Conference on Disaster Reduction', 2005, available at <http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Final-report-conference.pdf>.
- United Nations, 'Fact Sheet: Women, Gender Equality and Climate Change', Women Watch, 2009.
- United States Agency for International Development (USAID) 'Unsung Heroines: Women and Natural Disasters', Information bulletin No. 8, 2000.
- Women's Environment and Development Organization (WEDO), 'Gender, Climate Change and Human Security: Lessons from Bangladesh, Ghana and Senegal', 2008, available at: [http://www.gdnonline.org/resources/WEDO\\_Gender\\_CC\\_Human\\_Security.pdf](http://www.gdnonline.org/resources/WEDO_Gender_CC_Human_Security.pdf).
- World Bank, *World Development Report 2012: Gender Equality and Development*, Washington, DC, 2012.
- World Bank, 'Women Business and the Law 2012: Removing Barriers to Economic Inclusion', 2011a.
- World Bank, *World Development Report 2011: Conflict, Security and Development*. Washington DC, 2011b.
- World Bank, *Social Dimensions of Climate Change*, Washington DC, 2010a.
- World Bank, 'Study on Gender Impacts of Land Titling in Post-Tsunami Aceh', 2010b.
- World Bank, *World Development Report 2010: Development and Climate Change*, Washington DC, 2010c.

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