

Gendered dimensions of disaster risk management, natural resource management, and climate change adaptation in the Pacific

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Introduction

Disasters and climate change result in numerous impacts on people, their communities, and their environments. The Pacific Islands region is one place where such changes are visible along coastlines and in marine and terrestrial ecosystems, and where they impact on the availability of water and food. The livelihoods of Pacific Islanders depend on natural island ecosystems; therefore, in order to reduce negative impacts on them, it is essential to involve people from multiple sectors, including communities, civil society and governments, who have a range of scientific and indigenous approaches that can be used to reduce risks and build resilient communities.

An understanding of the gendered dimensions² of disaster risk reduction, climate change adaptation, and natural resource management will help illuminate social and cultural vulnerability, because gender ultimately informs the ways in which society works and in which decisions are made. In the Pacific, policies, programmes and initiatives that rely on donor funding have been directed to focus on mainstreaming gender or have employed a gender focal point to represent organisations in regional and international discussions of gender. In order to think further about ways to address gender as it pertains to these issues, it is important to understand the context of gender and the issues in the Pacific Islands.

Under the overarching frameworks of sustainable development and human security, the fields of disaster risk management and climate change adaptation have engaged in increasingly parallel tracks for planning and programming. In the Pacific, the cross-cutting themes of gender and traditional

ecological knowledge are important perspectives for understanding the socioeconomic dimensions of disaster, environmental degradation, and climate changes. Explorations of gender dimensions of disaster and climate impacts provide a deeper understanding of these impacts, which enables the identification of solutions that may alleviate them.

Intersection of disaster risk management, climate change adaptation, and natural resource management

Disasters are events based on the interaction of a natural hazard and a human population (and their built and natural environments), whereby the ability to cope with the results of the interaction has severe impacts on human settlements. National and local governments define disasters where they are unable to cope with death, injuries and damage without external assistance.

Environmental degradation, increased structural development, overuse of resources, poor land use, and overpopulation increase vulnerability to hazards, and thereby contribute to disasters. When a disaster threatens a community that is at increased risk from hazards, that community is less likely to be able to recover from the catastrophe. The more sustainable the development, the more resilient the community will be from threats.

Because the economies and small communities of Pacific Island countries are highly dependent on natural resources, they are more vulnerable to the impacts of climate change and natural hazards. While distinctions are often made between strategies provided by the disaster risk management community to address the current risk of hazards and weather variability, and the strategies adopted

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² Gendered dimensions refer to social and cultural characteristics of masculinity and femininity that result in different roles and responsibilities for men and women in society, divisions of labour in the formal and informal economic sectors, and unequal access to information and resources. These gendered aspects affect responses to disasters, preparation for disasters, and planning to reduce disaster risk. Similar differences are experienced in climate risk and environmental management. These gendered dimensions are part of fisheries management, such that men usually fish for pelagic species and women are involved in nearshore gleaning, that women may be more responsible for gathering the fish used for subsistence, and that shifts in gender roles over time demonstrate that women are more involved in post-harvest processing. Similarly, gender affects each of the areas discussed here and brings forth different socioeconomic and cultural dimensions.

by the climate change community in adapting to the future risk of climate change, the reality is that the nature of risk and its root causes are converging rapidly. In the Pacific, where resources are limited and communities are unlikely to differentiate between current risk and future risk, there is much impetus for adopting a “no regrets” approach to multi-hazard planning and risk reduction, involving the collaboration of the risk management and climate change communities.

In addition, there is increasing evidence that successful adaptation and coping capacity relies on measures that address the livelihood activities of poor and vulnerable communities. This not only requires an understanding of how livelihoods are conducted and sustained by men and women, it requires a strong appreciation of how climate change will impact on available natural resources and the different roles that men and women play in managing these natural resources (IISD 2003).

There have already been some concerted efforts to explore the gendered dimensions of disaster risk management in the Pacific. In 2002, the South Pacific Disaster Reduction Programme published “Gender, Households, Community and Disaster Management: Case Studies from the Pacific Islands”, which showed that men and women work in different sectors and areas of society (SPDRP 2002). This study revealed that efforts to reduce risks must approach the people working in specific socioeconomic sectors to be most effective. In 2004, the University of Hawaii and the East-West Center hosted a workshop on “Gender Equality and Disaster Risk Reduction” that issued a call to action for the disaster risk reduction community on dealing with gender issues in disasters (Anderson and Enarson 2004). Similarly, in the climate change arena, the World Wildlife Fund (WWF) has developed a Climate Witness Programme that explores the knowledge held by men and women in Pacific Island communities about the impacts that climate changes is having on their fragile ecosystems. Regionally, there are also a number of community-based projects addressing disaster risks and climate change adaptation, which have successfully integrated gender considerations.

Disaster trends

The Center for Research on the Epidemiology of Disasters (CRED)³ defines disaster as “a situation or event which overwhelms local capacity, necessitating a request to a national or international level for

external assistance; an unforeseen and often sudden event that causes great damage, destruction, and human suffering” (Scheuren et al. 2008:3). CRED developed a database of global disasters, which are characterised by the following criteria: 1) 10 or more people reported killed; 2) 100 people reported affected; 3) declaration of a state of emergency; and 4) call for international assistance.

Reviews of disaster data collected by CRED demonstrate an upward trend in occurrence of natural disasters worldwide. “The upward trend is mainly driven by the increase in the number of hydro-meteorological disasters” (Scheuren et al. 2008:16). With more than USD 74.9 billion in economic damages, the economic impact of natural disasters remained high in 2007. Once again, with over USD 29 billion in reported damages, meteorological disasters were the costliest group of disasters (Scheuren et al. 2008:12). The years with highest recorded incidents of hydro-meteorological disaster correspond with climate extremes in the El Niño-Southern Oscillation (ENSO) climate cycle. Hydro-meteorological disasters will be even more prevalent with anticipated changes in climate, where scientists project increased occurrence of extreme climate events (IPCC 2007:107). This indicates that the future will see constant increases in the numbers of disasters.

Climate change effects in small islands

The summary for policy-makers of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR4) stressed the following areas of concern for small islands in regard to climate change:

- Small islands, whether located in the tropics or higher latitudes, have characteristics that make them especially vulnerable to the effects of climate change, sea level rise and extreme events.
- Deterioration in coastal conditions, for example through erosion of beaches and coral bleaching, is expected to affect local resources (e.g. fisheries), and reduce the value of these destinations for tourism.
- Sea level rise is expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities.
- Climate change is projected by the mid-century to reduce water resources in many small islands (e.g. in the Caribbean and Pacific), to the point

³ The Center for Research on the Epidemiology of Disasters (CRED) is located in the Université Catholique de Louvain, Ecole de Sante Publique in Brussels, Belgium. CRED has developed a database of worldwide disasters or emergency events database used by the Office of Foreign Disaster Assistance, US Agency for International Development, the International Strategy for Disaster Reduction, and other organizations, such as the World Health Organization, the International Federation of Red Cross and Red Crescent Societies, and the European Union Humanitarian Office. CRED’s website is located at: <http://www.emdat.be/Database/terms.html>.

where they become insufficient to meet demand during low rainfall periods.

- With higher temperatures, increased invasion by non-native species is expected to occur, particularly on middle and high-latitude islands.

In reviewing IPCC findings, several of these should be considered in the risk reduction framework with regard to sustainable development and overall human security. Although quite general, the first bullet point focuses on the geographic characteristics that increase risk. The deterioration in coastal conditions may occur from a number of impacts in addition to climate change or hazard events when combined with other issues, such as shoreline development and polluted runoff, but each element reduces ecosystem health. Coral reefs, dune systems, and beaches can protect coastal communities from storm surge inundation, emphasising the importance of sustaining a healthy ecosystem. Non-native species may further threaten ecosystems and their role in maintaining island health and sustainability. The healthier the environment, the better protection will be for infrastructure, settlements and facilities. With seasonal to interannual variability, many islands experience severe water deficits, and are unable to meet the needs of the population. This situation is likely to worsen, and will then threaten health, livelihoods, and overall security. The lack of potable water resources will create uninhabitable conditions.

In the Small Islands chapter of the IPCC, and in IPCC working group discussions on climate impacts, issues of gender and traditional environmental knowledge have been discussed as areas that should be acknowledged in risk reduction and adaptation approaches because these cross-cutting issues offer knowledge and information that may not have been considered in conventional forms of planning and management (Mimura et al. 2007).

Understanding gender in the Pacific

Gender and gender relations refer to the socially (rather than biologically) determined characteristics of men's and women's positions in society. Thus, a gender analysis examines both women and men and the social, economic and cultural forces that shape their relative positions, and the relations between them (SPDRP 2002:8).

Gender is part of the social, political and cultural fabric of any society and explains relationships related to masculinity and femininity. In analysis, gender becomes a category to identify and evaluate women's and men's activities. Gender is usually not the only unit of analysis, as it can be combined

with age, race, ethnicity, class, and other population characteristics. Attitudes toward gender are not static, but change over time, enabling us to work toward gender equality.

Gender does not operate the same way in all of the Pacific Islands. It is embedded in complex island social systems that enabled centuries of survival. Historically and culturally, there are a number of matrilineal societies in the Pacific Islands. For example, in Yap State in the Federated States of Micronesia, nine of the inhabited atolls still use matrilineal systems to transfer land rights, even though Wa`ab (Yap proper) and Ulithi Atoll use patriarchal systems. Palau and the Marshall Islands also once had matrilineal systems. In a society with little land mass, control over the land equates with power (Lingenfelter 1975). Within these social systems, each person had a role in the community that enabled the community to function. The role may be designated by gender in some situations — men learned to build thatch houses and women would weave the thatch — or by family heritage in others — traditional healing methods or canoe building skills were passed on by lineage. These communal roles ensured that the society functioned well.

In many Polynesian Islands, such as Samoa, American Samoa, New Zealand and Hawai'i, women once retained ownership of land, but many of these holdings were dissolved during colonisation processes that used legal mechanisms and constitutional arrangements to systematically eliminate women's rights and secure property in men's names (Merry 2000; Silva 2004; Smith 1999). In Hawai'i, missionaries applied legal pressure to prevent a woman from divorcing her husband, and if she did, for whatever reason, the man retained possession of the property, which further encouraged abuse of native Hawaiian women as foreign men became wealthy property owners (Merry 2000).

Despite the loss of land and power that accompanied colonisation, many women retained a "matriarch" status at the household and community levels. At the household level or in rural communities, it is easier to discern gender roles. In some communities, men take care of building and maintenance, while women clean and take care of children, but these stereotypes do not exist uniformly. In some islands, women may not be involved in community fishing activities and may be more involved in land-based activities, such as gardening. As livelihoods shift from subsistence to cash economies and from rural to urbanised settings, these roles have transitioned. It has become increasingly important to understand the details of household and community operations because these are the areas that will be stressed — from disasters, climate changes or environmental degradation.

Arguments for including gender analysis in risk reduction and adaptation

Any type of disaster or extreme change will impact a population, sometimes in ways that have not been considered. Because gender analysis helps to reveal everyday problems and social vulnerabilities, it can be used to determine where increased stresses would threaten a socioeconomic system and can help identify interventions or plans to reduce the impacts of the threat. It does not seem intuitive that there will be much difference to men or women from the impact of a hurricane or flood because it would seem as if everyone is equally exposed to the risk. However, statistics demonstrate that women and children are 14 times more likely to die than men during a disaster (Araujo et al. 2007).

The more inequitable the society in terms of access to resources, economic advantage, social rights and environmental justice, the more vulnerable that women are during disasters (Neumayer and Plümper 2007). Similarly, Oxfam found that in the aftermath of the 2004 South Asia tsunami, one woman survived for every three men (Oxfam 2005). The socioeconomic positions of women can make them more vulnerable to disasters. Nonetheless, women's knowledge and social practices could be used to build resilience should women receive more information. For example, in the remote islands of Yap, women's knowledge of the island hydrology enabled them to find potable water and build new shallow wells during an ENSO-related drought (Anderson 2002:25).

Because climate change has resulted in rapid environmental changes, many of the familiar and exercised responses by local and indigenous communities may not be able to cope with the change without intervention. Although considerable uncertainty exists, the IPCC AR4 discusses the likelihood of increased climate extremes and disasters in the Pacific Islands. During the 1997–1998 ENSO event in the Pacific Islands, there were variations in the experiences of different islands (Hamnett et al. 1999). Several islands experienced a severe tropical cyclone as the last rainfall before an extreme dry period. The drought resulted in ecosystem and agricultural loss, impacts to economies, health threats and wildfires. When the rain returned, it caused flooding, erosion and landslides. With these compounding hazards, it took many islands years to recover. The potential for this type of cycle to repeat has increased with climate change, and this may severely stretch the survival capacities of a community to address challenges. This is why, however, it is important to understand the capacities of women, men, girls and boys in addressing their risks by each specific location.

Indicators in conducting risk assessments

As discussed previously, gender analysis helps to reveal the socioeconomic situation of a given place. The more indicators that are examined through this lens, the fuller the picture that begins to develop about a location. The following represents a sample of the type of indicators that should be considered:

- **Population statistics.** Demographic records including migration.
- **Poverty.** This concept varies as much as islands vary. Most islands do not have the scale of production that is required for calculating gross domestic product. People who still engage in subsistence activities may not need cash and by some standards may be considered "poor," but may eat a healthier diet and have title to their own land, which are strong factors in building resilience to natural hazards. This may be more important to look at in urban areas.
- **Human development.** Under the human development indicators list (UNDP 2007), the islands listed under "high development" include Tonga; "medium development" include Samoa, Fiji, Vanuatu, Solomon Islands and Papua New Guinea; and "low development" include: none. Climate change has been included as a new area for review in human development.
- **Gender development index (GDI).** Within the human development index (HDI), GDI captures inequality in achievement between women and men. The three indicators include life expectancy at birth, adult literacy, and education enrollment.
- **Land tenure.** Land rights and land tenure are important determinants in rights of women and men, access to resources, and livelihood sustainability.
- **Labour statistics.** Formal employment records and gendered divisions of labour show sectors that may have more participation by men or women. Sorting by wage rates and income reveals the levels of work most impacted.

Global efforts and initiatives

Efforts to integrate these areas draw support from international and regional initiatives. In order to maximise precious and limited resources in the Pacific Islands region, it is important to assess the range of opportunities, and determine a strategy for collaboration in building resilience to the impacts of climate and disaster risks in communities, civil society and governments.

In the most recent international initiatives and reports, climate issues are integrally linked with disaster risk reduction. The most significant document related to climate change, the IPCC AR4

completed in 2007, includes information about expected changes in small islands that are similar to the vulnerable conditions identified in disaster risk reduction programmes. In many ways, approaches using sustainable development frameworks have been identified as an approach for disaster risk reduction and adaptation to climate change.

Hyogo Framework for Action, Words into Action, and the Global Platform on Disaster Risk Reduction

The Hyogo Framework for Action (HFA) and the subsequent document that tried to provide recommendations to implement the HFA also promoted the sustainable development framework that considers a comprehensive risk analysis.

States and other stakeholders participating at the World Conference on Disaster Reduction resolved to pursue the following expected outcomes for the next 10 years:

“The substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries” (UNISDR 2005:3).

The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction (UNISDR 2005:3).

Disaster risk reduction is a cross-cutting issue in the context of sustainable development and therefore an important element for the achievement of internationally agreed on development goals, including those contained in the Millennium Declaration. In addition, every effort should be made to use humanitarian assistance in such a way that risks and future vulnerabilities will be lessened as much as possible (UNISDR 2005:5).

In 2005, there were some discussions of climate risks in the context of better integrating environmental considerations into risk reduction measures. By June 2007, when the Global Platform on Disaster Risk Reduction convened to review the actions from HFA and to ensure that they are implemented, the issue of climate change was featured as part of the high level dialogue. Consistently, the message focuses on developing a framework of sustainability that encompasses disaster risk reduction, climate change adaptation, environmental management, and development, with the inclusion and attention

to issues of poverty, gender and other socioeconomic and cultural concerns.

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 (UNISDR 2005:4).

Cultural diversity, age, and vulnerable groups should be taken into account when planning for disaster risk reduction, as appropriate (UNISDR 2005:4).

In the context of risk reduction, it is well recognised in the international community that gender issues are critical to understanding and developing appropriate risk reduction measures. As a socially-constructed concept, gender can illuminate the relationships in society. A gender perspective in disasters helps to understand the everyday relationships and societal issues that may be exacerbated in disasters. A gender perspective will also enable the identification of strategies to enable response, recovery, preparedness, and mitigation that may be rooted in societal coping mechanisms and strengths.

The Gender and Disaster Network, established in 1998, has been working for a decade to bring awareness to the issue (GDN 2009). The website provides a Gender and Disaster Sourcebook that was prepared with an international team to look at resources and information available that contribute to understanding how to use a gender perspective in risk reduction (Enarson et al. 2006).

National disaster risk reduction plans

As part of the HFA, national governments are encouraged to develop disaster risk reduction plans. In the Pacific, the Pacific Islands Applied Geoscience Commission prepared guidelines, “A Framework for Action 2005–2015”, endorsed by Pacific leaders (SOPAC 2005). The framework’s vision places it not only the context of sustainable development, but adds the human security dimension in the following vision statement:

Safer, more resilient Pacific island nations and communities to disasters, so that Pacific peoples may achieve sustainable livelihoods and lead free and worthwhile lives (SOPAC 2005:6).

The guidelines are divided into six theme areas for risk reduction, including governance, knowledge, risk analysis and evaluation, planning, early warning systems, and reduction of underlying risk

factors. These processes overlap with planning undertaken for climate change adaptation planning. Under key national activities, the framework specifies that governments will “integrate traditional knowledge into information management systems” (SOPAC 2005:13). The framework reiterates the principles of using traditional and local knowledge in all theme areas.

Unlike the guiding international documents, the Pacific Islands framework does not mention gender specifically. It does discuss social, economic and environmental considerations, and stresses community-based approaches. Each of these areas has a gender component that could be explored. The traditional and local knowledge used in most island systems is gendered.

National adaptation programmes of action

In order to address adaptation to climate change, the least developed Pacific Island countries have been encouraged to develop national adaptation programmes. The climate change framework, approved in 2005, maintains timing consistent with planning to meet the Millennium Development Goals and the Johannesburg Plan of Implementation to reach sustainable development. Timing further coincides with the disaster risk reduction framework previously discussed as part of the HFA.

The national adaptation programmes stress developing similar types of information to understand climate change, such as understanding social, economic and environmental vulnerability. It further specifies that plans should “integrate economic, scientific and traditional knowledge” in developing capacity and resilience (SPREP 2005:7). Again, gender is not specifically mentioned, but is still embedded in the focus of the Millennium Development Goals and the integration of Pacific Islands’ traditional knowledge.

Areas of sustainable development and human security

There are numerous sectors and areas of society that will be impacted by climate change, disasters and environmental degradation. Under the overarching frameworks of sustainable development and human security, some of the areas that may be important for consideration include:

- water resources,
- energy,
- coastal and marine resources,
- forestry resources,
- agriculture,
- public and environmental health,
- critical facilities and infrastructure,
- economy, and
- government and governance.

Each of these areas can be considered from a gender perspective. It is important to know who works in these sectors and in the secondary services that support them. It is important to understand the gendered dimensions of representation in each of these areas. This will help to better target resources to think about issues of integrating knowledge and effectively planning in these areas for the impacts from climate change.

Conclusions

Dealing effectively with climate change requires the integration of best practices in many sectors. With attention to the people most impacted by disaster, it becomes clear that mitigating disasters requires attention to poverty reduction, governance, capacity building, and social equity and justice. Thus, the areas of human security and sustainable development become the overarching frameworks for disaster risk reduction measures.

In spite of these great initiatives there are still gaps and opportunities in the region for making programming more gender responsive by developing a collective and comprehensive understanding of how gender informs both the vulnerabilities and capacities of Pacific Island communities to cope with climate- and disaster-related risks. Such an understanding will need to give particular attention to the livelihoods of men and women in the Pacific, and the way the roles they hold in their communities inform their participation in and knowledge of natural resource management. The resilience of Pacific Island communities to the impacts of climate change and natural hazards depends on a number of factors, such as natural resource management, agriculture, marine resources and traditional knowledge.

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