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The gendered dimensions of disaster risk
management and adaptation to climate change -

Stories from the Pacific



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Foreword: **Garry Wiseman** **United Nations Development Programme Pacific Centre**

On 28 February 2008, at the 52nd Session of the Commission on the Status of Women, the Hon Amberoti Nikora, Minister for Internal and Social Affairs, Kiribati, spoke on behalf of the Pacific Islands group at the Interactive Expert Panel. The theme was 'Gender Perspectives on Climate Change'. In his intervention, the Minister emphasised the importance of making gender central to the design and implementation of activities addressing the impact of climate change in Pacific Island communities. He called for efforts to address gender-specific impacts in energy, water, food security, agriculture and fisheries, biodiversity and ecosystem services, health, industry, human settlements and disaster risk management. The Minister also stressed the importance of activities taking into account women's priorities and making full use of women's traditional knowledge and practices.

The Minister's intervention highlighted the commitment leaders of civil society and governments in the Pacific have made to gender equality, human security, natural resource management, environmental degradation, climate change and disaster risk management through the Pacific Plan and other regional and international declarations.

It is no coincidence that Minister Nikora's intervention took place just six days after the Forum on the Gendered Dimensions of Disaster Risk Management and Adaptation to Climate Change held in Suva, Fiji, on 21 and 22 February 2008. The forum was the first of its kind to bring together Pacific-region experts in disaster risk management, climate change and natural resource management who believe in best practice and the importance of integrating gender into policy and program activities. It promoted further coordination and cooperation across these fields and, most importantly, identified ways to meet the region's needs and make Pacific Island communities more resilient. It did so in part by providing guidance on how to develop strategies with gender as a central consideration.

This publication synthesises the issues and outcomes from the workshop held at the forum's interactive group discussions. It provides a starting point for further discussion and exchange on these important issues. The United Nations Development Programme hopes donors and development practitioners across the region listen to the Pacific voices included in this publication and use it as a tool to guide the substance and direction of future programming in disaster risk management and adaptation to climate change.

Garry Wiseman

Manager

United Nations Development Programme Pacific Centre

Preface

The gender dimensions of disaster risk management and adaptation to climate change can no longer be ignored. Global virtual networks recognise the fundamental differences in the way women and men are affected by, contribute to, cope with and adapt to these vulnerabilities.¹ There are many reasons for the differences, including gender inequalities, the roles women and men play in their communities and the reality that women constitute most of the world's poor. As such, they are highly dependent on local natural resources for their livelihood and are disproportionately vulnerable to, and affected by, disasters and climate change.

The International Conference on Population and Development (1994), the Beijing Declaration and Platform for Action (1995), the World Summit on Sustainable Development (2002) and the World Summit (2005) all recognised the essential role women play in sustainable development. In its recent follow-up to the Beijing Platform for Action, the General Assembly of the World Summit highlighted the need to '... involve women actively in environmental decision-making at all levels; integrate gender concerns and perspectives in policies and programmes for sustainable development; and strengthen or establish mechanisms at the national, regional and international levels to assess the impacts of development and environmental policies on women (A/C.3/62/L.89)'.²

Gender equality is one of the United Nations Development Programme's (UNDP) core human development goals, which it promotes through gender mainstreaming. The Bureau for Crisis Prevention and Recovery (BCPR) is committed to the UNDP's Eight-Point Agenda for Women's Empowerment and Gender Equality in Crisis Prevention and Recovery. In 2008, the BCPR called for US\$10 million to help women and girls in crisis for the next two years. This funding is vital for scaling up the bureau's ground-breaking new strategy that addresses the needs of women affected by conflict and natural disasters.³

Significant attention is being paid to how managing disaster risks and adapting to climate change affects gender on a global level. In this context, the UNDP's Pacific Centre is encouraging gender-perspective discussions in the areas of mitigation, adaptation, technology and financing, and providing gender-sensitive guidance to regional organisations, national authorities and civil society as they further develop policies and programs in these areas. Good or promising practices at international, national and regional levels on identifying gender perspectives and involving women should continue to be supported and the results shared with a wide network of stakeholders,

¹ These may be accessed at <http://www.gdnonline.org/> and <http://www.gencc.interconnection.org/> respectively.

² See also the report of the Secretary General: An overview of United Nations activities in relation to climate change A/62/644.

³ More information: http://www.undp.org/cpr/how_we_do/gender.shtml

including development partners in natural resource management, disaster risk management, climate change and poverty reduction. A 'no-regrets' approach in addressing the risks Pacific Island women and men face should also be adopted.

The Crisis Prevention Recovery (CPR) Team of the Pacific Centre understands that conflict, disaster and climate change impacts men and women differently. Women have been seen as playing particularly strong roles in disaster preparedness, management and recovery. Therefore the CPR-Unit ensures that gender is mainstreamed across all support provided to ensure that their work has an impact on women's lives, security and dignity as described in the UNDP Eight Point Agenda for Gender Equality in Crisis Prevention and Recovery.

To further these objectives, the CPR team of the UNDP Pacific Centre, with support from the Australian Government's Agency for International Development (AusAID), invited 38 people from more than 10 Pacific Island countries, multiple government agencies, civil society, and Non-Government Organisations (NGOs) in the Pacific to attend the Forum on the Gendered Dimensions of Disaster Risk Management and Adaptation to Climate Change held in Suva, Fiji, on 21 and 22 February 2008. At the forum participants identified strategies for integrating gender, disaster risk reduction and climate change into resource management programming in the Pacific. They also explored ways expert practitioners in the region could collaborate in these areas, paying particular attention to understanding the gender dimensions of their respective fields. Until recently, the disaster risk management and adaptation to climate change sectors have worked along parallel lines and paid little attention to gender. The forum highlighted that successful strategies require women and men in rural and urban communities to be engaged in decision making at all levels.

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Disclaimer

The views expressed in this publication are those of the authors and not necessarily those of the Australian Agency for International Development (AusAID).

Acronyms and short forms

AusAID	Australian Government's Agency for International Development
BCPR	Bureau for Crisis Prevention and Recovery
CBDAMPIC	Development of Adaptation Measures in Pacific Island Countries
DSAP	Development of Sustainable Agriculture in the Pacific
ENSO	El Niño-Southern Oscillation
HDI	Human Development Index
ICM	Integrated Coastal Management
IESD	Institute of Environment for Sustainable Development
IFRC	International Federation of Red Cross and Red Crescent Societies
IPCC	Intergovernmental Panel on Climate Change
LMMA	Locally Managed Marine Area
MDG	Millenium Development Goal
NAP	National Action Plan for Disaster Risk Reduction and Disaster Risk Management
NAPA	National Adaptation Programmes for Action
NGO	Non-Government Organisation
NMS	National Meteorological Services
NGO	Non-Government Organisation
PACE-SD	Pacific Centre for Environment and Sustainable Development
PEG	Pacific Energy and Gender Network
PICC	Pacific Islands Climate Change Framework
PIEP	Pacific Islands Energy Policy
PIFACC	Pacific Island Framework for Action on Climate Change
PIFS	Pacific Islands Forum Secretariat
SOPAC	South Pacific Islands Applied Geoscience Commission
SPC	Secretariat of the Pacific Community
SRDRP	South Pacific Disaster Recovery Programme
SREP	Secretariat of the Pacific Regional Environment Programme
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UH	University of Hawai'i
UOG	University of Guam
USP	University of South Pacific
WEDO	Women's Environmental Development Organization
WMO	World Meteorological Organization
WWF	World Wildlife Fund



Section One

Introduction to gendered dimensions of disaster risk management and adaptation to climate change in Pacific Islands

To address the risks women, men, girls and boys face from hazards, climate change and environmental degradation, it is essential to understand a range of variables, such as where people live, their culture, social values and economic position. Different hazards such as earthquakes, tropical cyclones, floods, tsunamis, drought, landslides, erosion and wildfires, present different challenges to governments, organisations and communities. Hazards turn into disasters when people do not have the capacity to prepare for, respond to and recover from them. The number of people living on Pacific Islands affected by weather-related disasters has increased from 1.2 million to 18 million in the past 30 years with droughts, extreme temperature events and tropical cyclones producing the most significant impacts (International Federation of Red Cross IFRC) 2002. There are ways to reduce the threat of disaster, however, including examining gender. This is the focus of this section.

The importance of the concept 'gender' in disaster risk management, climate change and natural resource management has emerged through the work of international networks,⁴ alliances⁵ and organisations as well as in publications⁶ and high-level policy statements.⁷ These global virtual networks on gender and disaster, and gender and climate change recognise the fundamental differences in the way women and men are affected by, and contribute to, these issues and in their capacity to cope with and adapt to them.⁸ There are many reasons for this, including existing gender inequalities, the differing roles women and men play in their communities and the reality that any type of disaster or extreme climate change affects a population, sometimes in ways never before been considered.

Linking concepts through the Forum in Suva

On 20 and 21 February 2008, 38 people from more than 10 Pacific Island countries and multiple government agencies, civil society organisations and NGOs from the Pacific gathered in Suva, Fiji, to attend the Forum on the Gendered Dimensions of Disaster Risk Management and Adaptation to Climate Change, sponsored by AusAID and the UNDP Pacific Centre.

⁴ Networks include the Gender and Disaster Network, www.gdnonline.org, and the Gender and Climate Change Network, www.gendercc.net

⁵ The Global Gender and Climate Alliance is a joint initiative of the International Union for Conservation of Nature, also known as the World Conservation Union, the United Nations Environment Programme (UNEP), the UNDP, and the Women's Environmental Development Organization (WEDO) to collaborate with governments, NGOs, and civil society organisations in addressing gender aspects of climate change.

⁶ Publications in this area include several documents in the reference section of this report: Enarson and Morrow 1998; Anderson 2001; and, United Nations International Strategy for Disaster Reduction 2007.

⁷ The Global Platform for Disaster Risk Reduction included high-level policy statements on including gender, which have been incorporated into the Global Review 2007 (www.preventionweb.net/globalplatform) as a review of progress under the Hyogo Framework for Action following the United Nations World Conference on Disaster Reduction in Kobe, Japan, 2005.

⁸ These may be accessed at <http://www.gdnonline.org/> and <http://www.gencclinterconnection.org/> respectively.

At the forum participants identified strategies for integrating gender, disaster risk reduction, climate change adaptation and resource management programming into policies and programs for the Pacific. They also explored opportunities for practitioners in the region to collaborate. Until recently these practitioners have worked along parallel lines paying little attention to gender.

At the forum, participants engaged through presentations, discussions, breakout exercises and planning activities, examining gender and disaster, climate science, climate change impacts and traditional ecological knowledge. Case studies and lessons learned in various sectors (agriculture, marine resources, energy, disaster management, climate services and climate adaptation) highlighted how gender is embedded in relationships and can create power inequalities. These inequalities are evident in the decision-making that influences natural resource management, development, planning and management.

In the Pacific, the cross-cutting themes of gender and traditional ecological knowledge are important for understanding the socioeconomic dimensions of disaster, environmental degradation and climate change on a number of levels, including how they affect women, men, girls and boys. In addition, there are often fundamental differences in understanding and interpreting risk among these groups. Finally, it is important to recognise the different roles these groups play and the contributions they make in preparing for and reducing the risk of disaster and adapting to climate change. Forum participants concluded that further investigation using gender analysis and traditional ecological knowledge methods is imperative.

Understanding gender and gender roles in the Pacific

Gender is a complex term that can easily be misunderstood. The South Pacific Disaster Recovery Programme (SRDRP), formerly at the Pacific Islands Applied Geoscience Commission, summarises gender and gender relations as '... 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 which shape their relative positions and the relations between them' (SPDRP/SOPAC 2002).

Gender does not mean 'women'. Nor does it refer to 'feminism' or 'women-only' programs, funds or entitlements. Some development programs and policies have tried to improve the inequity in access to resources between women and men by providing more resources to women. However, they fail to recognise that women and men experience inequitable access to resources. In the long run these programs and policies have in some cases exacerbated inequities and created conflict as some community sectors have grown to resent special treatment based on sex. They have not, in other words, succeeded in balancing society.

Public awareness campaigns need to take account the different ways men and women absorb information.

Rebecca McNaught
Senior Programme Officer
Red Cross/Red Crescent
Climate Change Centre

To avoid these and other issues, this publication advocates that women and men must be engaged in designing, developing and implementing projects and other initiatives that directly affect them.

It is important to recognise that both gendered divisions of labour and women's and men's specialised traditional or local knowledge, far from being static, shifts in response to development processes, urbanisation and the pressures of natural disasters, environmental degradation and climate change. While the Pacific is experiencing increasing urbanisation, the majority of the population still resides in rural areas and at least partially depends on subsistence living. Also, gender roles and relationships share similarities and differences between and within islands. In some communities, for example, men take care of building and maintenance, while women clean and care for children. In other communities, men are primarily involved in deep-sea fishing and women gather from the near-shore areas. Depending on the island, men may be primary farmers growing taro and yams and women may be responsible for planting fruit and home gardens. Roles and responsibilities, in other words, are influenced by culture and community—they are not uniform across the Pacific and cannot be generalised, but need to be understood so resources can be allocated and activities planned. It is also important to understand how roles are changing in rural and urban areas as livelihoods shift from subsistence to cash economies and as people move from rural to urban areas.

Urban areas have different cultures, larger populations, more tourists and access to modern technology, which change socialisation practices, cultural norms and gender relations more quickly than in rural areas.

Changes to gender roles and relations are also occurring in rural areas, however. Today, women have taken on many of the roles that used to be reserved for men. As Dr Veikila Vuki, a professor at the University of Guam (UOG) and editor of the Secretariat of the Pacific Community's (SPC) 'Women in Fisheries Bulletin', noted at the forum, fisheries and post-harvest processing jobs now increasingly involve women in areas previously regarded as positions for men.

Throughout the Pacific, gender is embedded in complex island social systems that have enabled communities to survive for centuries. Varying degrees of matrilineal and patriarchal inheritance land systems and leadership structures exist within each island. For example some matrilineal descent systems allow land to be passed along the mother's line but decision-making rights over the land lie with men. In other systems, full land rights lie with men. In some islands, women hold high titles, such as chief, and make important decisions about island development and governance, however it is more common for men to hold public-leadership positions. This is reflected in the political participation rate of women in Pacific Countries. Against the world average of 16 per cent women

Parliamentarians, the Pacific region along with the 'Arab States' have the lowest average female parliamentarian rate in the world, at 3.5 per cent (excluding Australia and New Zealand).⁹

Within these social systems, everyone plays a role, enabling their community to function. Roles could be based upon sex (for example, men would build thatch houses and women would weave the thatch), or family heritage (for example, certain families were traditional healers or canoe builders). Communal roles ensured society functioned well. While colonisation and missionary activity have resulted in many changes, there are still clear divisions of labour and hierarchies along traditional lines in many societies (Anderson 2005).

To better target programs and policies, development practitioners must understand the diversity of social systems across the region and how gender operates at household and community levels. It is equally important that they understand how roles and relationships may be affected by disaster, environmental degradation and climate change. For example if more men die when fishing during a cyclone, then widows may become more reliant on favours from male relatives or may need to learn to fish in addition to performing their usual duties.

Exercise: Understanding gender links to social and cultural identities



To understand how gender is linked to age, race, ethnicity, class, social status, educational status, occupation, culture and other socioeconomic characteristics, forum participants engaged in an exercise. Each was given an identity mixing several characteristics—for example: an unemployed elderly widow living with her son; a young male land owner; a female island chief; or an educated, disabled, male youth. Each had to step forward or backward based on their characteristics and how they would be capable of responding to different disaster scenarios, such as flooding.

Participants quickly learned how different social characteristics work in concert to create conditions of vulnerability or resilience. As two participants said:

I didn't think about how gender is linked to so many other social identities before.

The exercise shows that being male does not necessarily make you the winner, and that other things like wealth, education, and social status can be important factors in how you advance in society.

The exercise also highlighted the importance of considering multiple identities in planning and preparing for projects and programs. Gender is not just about women and men, therefore. It is linked to age, race, ethnicity, class, social status, educational status, occupation, culture and other socioeconomic characteristics. In different crises, these characteristics may combine and result in greater vulnerability or resilience.

⁹ PIFS 2006. A Women's Place is in the House—The House of Parliament. Research to advance women's political representation in Forum Island Countries: a regional study presented in five reports. Pacific Islands Forum Secretariat. Note 8, p. xiv.

Climate and risk in the Pacific region

The Pacific Islands are vulnerable to meteorological- and geological-related disasters. Even though the islands are some of the lowest contributors of greenhouse gas emissions in the world, they will be more severely impacted by climate change which will in turn result in more disasters. Extreme climate events, such as tropical cyclones, flooding and El Niños, seemingly occur more frequently and with higher and more severe intensity. The 1997–98 El Niño-Southern Oscillation (ENSO) is a case in point. Islands experienced severe drought and other climatic extremes through the ENSO cycle, including wildfires, typhoons, flooding, landslides, sea-level variation and mudslides. Climate-change predictions suggest there will be a further increase in extremes, coupled with projected rises in sea level, which means island communities will continue to be at risk from severe flooding, cyclones and storm surges

(Mimura et al. 2007; Bettencourt et al. 2003).

The rapid environmental changes Pacific Islanders have witnessed—perceived as climate change impacts—must also be considered in the context of other regional development trends. A complex interplay of factors beyond climate change—such as exceeding population thresholds of island-carrying capacities, poorly planned development, rural-urban migration, breakdown of traditional social structures and the corresponding loss of traditional knowledge and practices, dependence on imported food, goods and energy sources, low diversity in economic sectors, unsustainable harvesting practices and pollution—also may mean local communities will not be able to rely on the coping mechanisms they are familiar with.

Each island must therefore seriously think about how they might be vulnerable to, or at risk of, an increase in disasters as a result of climate change. This includes assessing the strengths and vulnerabilities of each community to maximise existing or develop new coping mechanisms. Improvements in planning, for example, require analysis of likely scenarios, such as more frequent flooding of coastal roads, as well as strategies for coping, such as climate-proofing designs that raise heights of roads and bridges and move infrastructure inland (Hay et al. 2003). As part of this analysis, communities could identify immediate, low-cost actions (for example, integrated watershed management and environmental practices) that would reduce stress on ecological systems and essential resources habitats.

A healthy environment will help reduce the impact of climate change and the risk of disasters, enabling affected communities to recover. Environments overused or stressed from pollution cannot recover easily and because most Pacific Islands still have some subsistence use of marine resources and food gardens, this would threaten livelihoods. Indeed, in looking closer at livelihood issues, it is apparent there are differences in the way women and men use subsistence resources—women may not be able to gather nutritious food from near-shore waters for their families or men may not be able catch pelagic fish that move out of their Exclusive Economic Zones, which could impact on their economic wellbeing and ability to meet cultural demands for providing fresh tuna at births, funerals and community celebrations.

Gender analysis is also a comprehensive way to examine the impact and risk of disasters and climate change on an individual's life. For example, the loss of roads in urban areas would have greater impact on those needing to travel to work in cities than on those working from home. Loss of roads may also be a burden to the elderly who need roadways to access medical attention in urban areas. Another example is clearing or polluting the mangroves women rely on to gather nutritional food. This would decrease the food supply for coastal families and worsen coastal inundation from storms. Gender analysis exposes these consequences.

Pacific Islands and climate change implications

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Are water shortage problems due to mismanagement or lack of rainfall from climate change?

Dr Veikila Vuki
Professor, UOG Editor
SPC's Women in Fisheries Bulletin

— ■ —

It may be a combination of both [water shortage and mismanagement]. The Vaturu Dam in Fiji had no rain for two years, yet community members successfully managed the minimal amount. In other communities, distribution problems due to leaks and failing pipelines are resulting in water shortages even with sufficient rainfall. Over the long term, we should be taking into account the water capacity of the dam related to increasing population size due to migration and relocation.

Simon McGree

— ■ —

By Simon McGree, Manager, Climate Services, Fiji Meteorological Service and Fiji representation on the Intergovernmental Panel on Climate Change

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) released in 2007 stressed that warming of the global climate system is unequivocal. Increased temperatures, especially on land, and rising sea level, are consistent with these warming trends.

These climate trends are predicted over the next 20 years for small island developing states:

- Air temperature increases—warming greatest over land and at most high northern latitudes and least over the Southern Ocean and the Northern Atlantic Ocean.
- Rising sea level consistent with warming—global sea level has risen since 1961 at an average rate of 1.8 mm a year and since 1993 at 3.1 mm a year with contributions from various sources (e.g. thermal expansion). All sea-level monitoring stations in the South Pacific have documented increases in the sea level in the last decade.
- Precipitation changes trends toward increased extremes, leading to impacts such as increased droughts or heavy rainfall events.
- Tropical cyclone intensity—trends on increased intensity in wind and rainfall.

Pacific climate-sensitive systems and sectors likely to be impacted:

- Coastal—degradation of mangroves and salt marshes, due to multiple stresses. Shoreline changes, tree-root exposure and severe erosion.
- Marine—degradation of coral reefs and fisheries due to multiple stresses.
- Water resources—are likely to become less predictable and reduced due to changes in rainfall and evapo-transpiration, especially in low-lying atolls that do not have adequate storage, ample aquifers, or surface water.
- Agriculture—decreased water availability and inconsistent crop yields.
- Low-lying coastal systems—due to sea level rise and increased risk from extreme weather events such as storm surges.
- Human health—increases in waterborne diseases and diseases spread by mosquitos.

Section Two

Entry points for integrating gender in disaster risk reduction and adaptation to climate change

The difference in the ways women and men are vulnerable to natural disasters and climate change may not be immediately obvious—it may seem everyone is equally exposed. However, research on gender and gender roles shows otherwise. For example, statistics demonstrate that women and children are 14 times more likely to die than men during a disaster (Araujo et al. 2007). For example, Oxfam found that in the aftermath of the 2004 tsunami, one woman survived for every three men, which has had a profound effect on community and family structure (Oxfam 2004). The reasons for this are manifold, but in affected countries local cultures play an important role because they determine divisions of labour. In many communities impacted by the tsunami it was women who processed fish in near-shore coastal areas and men who fished at sea. Men, if on their fishing boats, were less affected. Women may also be less mobile than men leading up to or during a disaster, because cultural dress can restrict movement and/or because they are responsible for caring for the most physically vulnerable such as children, the elderly and the disabled.

Equally important are the ways men are exposed to risk. Social understanding of what it means to be a man in some cultures, for example, may encourage men to take more risks or perform heroic acts to live up to community expectations around their strength and responsibilities for protecting families and communities.

Access to resources also influences the ways women and men are affected by disaster. For example, women are less likely than men to have access to valuable resources such as income and land, making them more dependent in post-disaster scenarios. Households led by females are especially vulnerable. Conversely, men may suddenly find themselves in the role of primary caregiver post-disaster having to both provide for and care for their families. Similarly, loss of livelihoods may place pressures and expectations upon men suddenly unable to provide for their families.

Using traditional knowledge to access gendered knowledge

Adaptive capacity and resilience can also be strengthened through traditional knowledge and past experience of environmental changes. In the Third Assessment Report, Nurse et al. (2001) noted that some traditional island assets, including subsistence and traditional technologies, skills and knowledge, community structures and coastal areas containing spiritual, cultural and heritage sites, appeared to be at risk from climate change (particularly sea-level rise). They argued that some values and traditions are compatible with modern conservation and environmental practices (Mimura et al. 2007, 708).

Traditional knowledge and practices in the Pacific are often gendered. Even though the islands are not homogeneous, gender often dictates where

While it is important to be gender sensitive, there's a need to recognise the danger of stereotyping women as vulnerable in ways that might obscure their strengths and resilience.

Dr John Campbell

women and men work and separates traditional knowledge into women's and men's knowledge. Traditional or local knowledge is therefore important for understanding gender and gender roles and responsibilities.

In the Pacific, traditional knowledge is also important for reducing the risk of disaster—it is relied on to build resilience by preparing communities for survival and recovery. It teaches communities how to preserve food, the importance of inter-island and inter-village cooperation and exchange, traditional ways to build houses and settlements, how to predict local-weather warnings and how to pass on environmental knowledge and cultural practice to new generations.

Traditional knowledge also bonds communities and can be an empowering resource post disaster. During non-disaster times, men enhance their status with village leaders by contributing surplus stocks of food and other goods. In disaster times, men can then draw on their leaders for favours, such as redistributing food and other forms of wealth, or 'subsistence abundance' (Campbell 2006).

Traditional island knowledge for risk reduction and adaptation

By Dr John Campbell, Associate Professor, Department of Geography, Tourism and Environmental Planning, University of Waikato

The ways in which Pacific Islanders have planned and recovered from disasters over centuries demonstrates ways in which traditional knowledge and skills will be beneficial in adapting to climate change, especially since most of the disasters experienced by Pacific Island countries are related to climate hazards. The diversity among the islands in the Pacific means that there are a variety of Pacific cultures and that traditional knowledge has evolved in different ways in different parts of the region. In the areas of disaster risk reduction, emphasis for survival, recovery, and preparedness focuses on food security, cooperation, housing and settlements, and environmental knowledge.

Pacific Island communities have used traditional coping mechanisms to respond to the impacts of disasters. Men and women had specific roles in these communities defined by their gender that influenced the knowledge they held. Men were often primary builders and used mitigation techniques during construction to prevent wind and flood damage. The configuration of roofs, air tightness and bindings helped structures withstand strong winds and heavy rainfall. In coastal regions, the structures were often built on platforms that served cultural and ceremonial purposes and had the added benefit of protecting the house from coastal stormwater inundation. Women's knowledge typically involved responsibilities for securing food and water for their communities.

For food security, several elements contribute to developing community resilience including: surplus production, agricultural diversity, planting resilient crops, food storage and preservation, famine foods as alternative sources, and land fragmentation that enables plant survival in some areas to prevent total crop losses. Food preservation included techniques such as fermentation of breadfruit, taro, and banana, dry storage, baking, flour production from arrowroot and pandanus, drying and ground storage. Famine foods, which were not frequently eaten in times of prosperity, included wild yams, sago, alocasia, nuts, fruits, ferns and fungi. Many of these long-used traditional techniques help strengthen communities and enable them to deal with changes.



Across the Pacific the many traditional ways of understanding and interpreting local weather signs, based on women's and men's knowledge of their environment, have helped communities prepare for disasters. In many countries, for example, an unusually large and early harvest of mangoes at the beginning of a wet season is a sign of impending cyclone activity. Wasps building nests in low-lying positions is a sign of impending cyclone activity and, in some parts of the Northern Pacific, frigate birds flying low over the reef a sign of impending storm activity.

Within the World Wildlife Fund's (WWF) Climate Witness Program, women's and men's traditional roles and environmental knowledge have proven to be crucial in observing shifts in natural resource availability due to long-term changes in climate. On Kabara, an outer island of the Lau group in Fiji, for example, women are noticing the impacts of coral bleaching, shifting weather patterns and rising temperatures on the availability of fish. This has led to a corresponding decline in the level of their catches and a rise in the amount of time they must fish to meet their family's daily subsistence requirements.

In his forum presentation on traditional island knowledge for disaster risk reduction and climate adaptation in the Pacific, Dr Campbell discussed the role women play in practicing food-preservation techniques, including the fermentation of breadfruit, taro and banana, the dry storage of yams, the production of flour from taro and pandanus, and drying breadfruit. These techniques reduce the community's risk to food insecurity during and after a disaster. While some of this knowledge remains, some has been lost due to an increase in imported food stuffs such as rice.

Men and boys have had the primary responsibility in most islands for housing and settlements, including construction and maintenance. Traditional housing has been built with local materials such as wood, thatch and raised platforms, and most island members would help gather materials. The men who have provided the labour required to gather materials to repair roofs, for example, would rotate shifts to ensure enough men from the family were able to help maintain each house. While it was generally the men in a family responsible for house construction and maintenance, community collaboration and structures were also important. In addition, western contact and development has meant that many imported materials are now used for construction in many Pacific Islands, especially during post-disaster reconstruction. Gender-specific roles and knowledge regarding house maintenance and construction both before and after disasters continues to be used, but has increasingly changed as new construction methods are adopted. A study conducted by the SPDRP on disaster preparedness in four Pacific Islands found that in 2002 men and boys in Fiji, Kiribati and Solomon Islands are still largely responsible for securing houses before a disaster and rebuilding them after a disaster

(SPRDP/SOPAC 2002). Thus even when new technologies are introduced, traditional knowledge remains relevant for local-level preparedness and risk-reduction measures.

Disaster-relief reconstruction efforts that do not recognise traditional knowledge may result in a loss of this knowledge. The imposition of relief-agency building specifications and materials in the Federated States of Micronesia, for example, led to a loss of knowledge on construction designs that enable structures to withstand typhoons. Also, imported materials deteriorate quickly in harsh island environments, which lower the structural wind rating of houses. In addition to a loss of construction methods, traditional houses have always been more functional. Failing to consult women in design means their houses do not suit their needs (Anderson 2005). For women and children, the lack of low breezeways and windows in imported house designs, for example, means women sitting on the floor working become too hot. Similarly, in American Samoa, the Department of Public Works lamented the loss of knowledge held by men that had enabled them to build homes that withstood hurricanes (Anderson 2005).

Many lessons can be drawn from these examples. First, women's and men's specialised environmental knowledge can be undermined by recovery programs that make assumptions about the needs of communities and the roles women and men play in those communities. Second, problems emerge when traditional knowledge is displaced by imported scientific or technological mechanisms. Third, local knowledge and practice is resilient and evolves over time. Fourth, and most important, opportunities arise when local knowledge is integrated with new technologies and scientific approaches to disaster risk reduction and climate change adaptation.

One project that has successfully integrating local practices with new technologies is the SPC's Development of Sustainable Agriculture in the Pacific (DSAP) program. DSAP-extension agents work with women, men and youth groups using participatory learning and action methods to enhance the planting of crops. The program has engaged researchers to develop drought- and saltwater-resistant strains of taro and other critical food resources. It advances the quality of home gardens and the environment by blending new technologies and traditional knowledge, in areas such as:

- 1) soil improvement to increase crop yield, stabilise land and prevent erosion
- 2) evaluation of tissue culture plants to improve the quality of plant resources and deal with pests and eliminate diseases
- 3) livelihood sustainability for families to enhance food security with home gardens and diversification of crops and food resources.

Using gendered entry points in traditional village institutions for climate change adaptation approaches



Community Vulnerability & Adaptation Assessment (CBDAMPIC Project, Samoa). Task Force member discussing with an elderly lady while a student observes and looks on



FALEALUPO-TAI WC Project. Traditional Knowledge and Technology can boost sustainable development.

Urbanisation in Samoa has had an impact on traditional gender roles. They become less defined and there are fewer safety nets available.

Peniamina Leavai

By Peniamina Leavai, UNEP–IESD Tongji University Graduate Researcher

As part of the nine pilot projects on Capacity Building for the Development of Adaptation Measures in Pacific Island Countries (CBDAMPIC) from 2002–2005, initiatives were developed in several Pacific countries to promote climate change adaptation at the community level, including two projects in coastal communities in Samoa.

The projects required integrated efforts from institutions and agencies, including building awareness about the expected impacts from climate change. Community-based NGOs and civil society organisations, such as the Red Cross, help communities identify threats and prioritise actions to reduce risk. Rather than conducting a single-village meeting and developing plans, the approach was to consult people in different levels of village government, beginning with the village council. Other institutions in the village include the women’s committee, untitled men and youth, and churches. These traditional institutions are characterised by strong participation and the expectation from people in the village that they have voice and influence in their village governance; therefore, projects need to factor these traditional institutions and structures into approaches in working with the villages for effective implementation. To ensure that actions receive support, it is important to initiate discussions with the high-level chiefs and gain approval before beginning projects. It is equally important to consult at all institutional levels. Through this consultation process, the villages identified threats from severe coastal erosion and decided that solutions would include seawall construction and mangrove restoration as adaptation measures.

In Samoa, the traditional leadership structures provided the most effective entry points for reaching all groups in society, including women, men, youth and children. At the village level, hierarchies exist in the institutional framework. At the top of the institutional framework, the village council includes titleholders and traditional leaders such as high chiefs and talking chiefs. Village community-based organisations provide entry into the community through the women’s committees and untitled men and youth who have organised official groups under the auspices of church leadership. At the lower levels of the hierarchy, households and families have kinship associations that provide another effective entry point for engaging in participatory project development. The churches and their associations are important features of local village and church leaders have extensive influence, especially in community and household levels of outreach. Because the CBDAMPIC framework is participatory and engaged in a process that developed climate change awareness in institutions at all levels within the village, the implementation of the projects proved successful.

Technical solutions imposed from outside often miss some social/cultural issues. It is important to work across sectors on community education.

Helen Pearce
Coordinator
Tsunami Risk Assessment
Pacific Islands Applied
Geoscience Commission (SOPAC)

Understanding gender roles and relations in traditional structures to promote ownership and sustainability

During his presentation at the forum, Peniamina Leavai explained how traditional structures are important for understanding how gender operates in a community (previous page).

Several themes emerged during the forum on the importance of consulting the local community and in using existing social, cultural and political structures to reach all segments of society. The Pacific is rife with examples of disaster and development interventions that fail to recognise traditional social structures and the gender relations within them. Failure to do so can result in development projects undermining the social structures, rules and understanding that govern the use, control and distribution of resources. Such projects are often unsustainable and can create long-term problems. For example, projects aiming to empower women at the exclusion of men, by increasing women's access to income or decision-making processes need to be based on an understanding and consideration of the potential impacts on existing social structures and gender relations. If they are not they may create short-term gains during intervention but risk being undermined by the conflict they can create. Indeed, these types of projects often fail when handed over to communities. To ensure project sustainability, it is important to consider gender relations and the impact of inequitable traditional structures on existing social structures. Using such structures as entry points to create change foster ownership and sustainability. Thus, broad community consultation is needed to gain a full understanding of existing structures and initiatives and ensure disaster risk reduction and climate change adaptation plans are relevant and appropriate.



Consulting local communities using existing social and cultural structures.

Section Three

Conducting gendered risk assessments and gender analysis

One of the most important ways to analyse gender is through sex-disaggregated data. Collecting and recording information on women, men, girls and boys as separate social groups is not consistently carried out in the Pacific in the fields of disaster risk management and climate change adaptation. Yet this sort of data can be valuable in understanding how these issues impact on these separate social groups. For disaster risk management, data could be collected and recorded on property or economic losses and injuries experienced by women and men during disasters through rapid or initial damage assessments immediately following a disaster. If data is collected on the services and resources women and men use post disaster and the separate roles both play in preparing their communities for disaster, then a better understanding of the different ways women and men are exposed to and perceive risk as well as the resources they have at their disposal to respond to and cope with climate change and disasters, will be gained. Data that is not sex disaggregated often assumes that a population as a whole is represented when, in reality, only part may be or just the most vocal and visible sectors.

This means projects that do not use sex-disaggregated data run the risk of making interventions that are not well targeted or result in inequitable outcomes for different community sectors. For example, if a development project is based only on information about male community members then women are less likely to benefit. Gender analysis helps target resources, identify risks and develop programs that address the root causes of vulnerability to disasters and other threats using the most culturally appropriate methods. In analysis, gender—as part of the social, political and cultural fabric of any society—becomes a category for identifying and evaluating women's and men's distinct roles and responsibilities.

While collecting sex-disaggregated data can be time consuming it is essential for well-targeted development interventions. A range of other resources are also available, including:

- Population statistics—Demographic records of the Pacific Islands are held by the SPC and may prove useful for gender analysis. For example, records show higher male populations in every island group except for Tuvalu, Tokelau, Kiribati and the Northern Mariana Islands and significantly higher male populations in Samoa, Palau and Fiji. Many islands have experienced significant shifts in population over the years as a result of disasters and environmental resource needs. Generally, men have more mobility, but this is not reflected in recorded population statistics (SPCD/PP 2006).
- Employment statistics—Information on women's and men's participation in cash or subsistence economies, which can provide a wealth of information on the resources each group can access. This data, if collected, is held in country databases or statistical offices and

Gender requires a long-term strategy. Strategies need to be persistent and culturally relevant. They must listen to communities and find ways to share feedback between men and women.

Donna Webb
Officer
Australian Red Cross
Solomon Islands

would originate from Census or gender-analysed Household, Income and Expenditure Surveys.

- Divisions of labour—Information on where women and men work, the resources they manage and the resources they use or influence, can help determine better allocations of resources, funding and assistance. This data, if collected, is held in country databases or statistical offices.
- Human Development Index (HDI)—Indicators compiled by the United Nations. The 2007 indicators showed Tonga is the only island listed under high development. Islands listed under medium development are Samoa, Fiji, Vanuatu, Solomon Islands and Papua New Guinea. There are no islands listed under low development. Other Pacific Islands are not included in the index. Climate change has also been included as a new area for review in human development.
- Gender Development Index—Compiled by the United Nations. Captures inequality in HDI achievements between women and men. The three gender development index indicators include life expectancy at birth, adult literacy and education enrolment.
- Land tenure—Information on land rights and systems of land tenure can help build understanding of the rights of women and men and the kinds of resources they can access. This data is different by country and would be collected at a national level and held in country statistical databases and land departments.
- Immigration statistics—These statistics can be useful in assessing vulnerability. For example, in many Pacific Islands significant numbers of immigrants have been brought in to conduct labour. Understanding where they work, the type of work they perform and the rights they are given may help assess their vulnerability. This data is collected by national governments and held in their statistical databases.

Using participatory gender methods for sector-related assessments

An important concept embedded in most presentations made during the forum was that gender analyses, disaster risk management environmental assessments, and adaptation to climate change plans must be conducted in a participatory way.

Presentations by Mereseini Seniloli, Coordinator DSAP Micronesia, Leone Limalevu, and Lavenia Tawake Research Assistants, USP stressed the importance of using participatory rural-appraisal techniques to ascertain the needs of different community segments. Projects that do so respond directly to real needs. These three presenters worked in different sectors on different projects. Their approaches illustrate that different segments of the population use resources differently.

Gendered dimensions integrated in climate change adaptation projects in Fiji

Changes have shown that women are more actively involved in coastal resource management and leading waste management activities.

Lavenia Tawake

By Lavenia Volavola-Tawake, Project Coordinator, and Leone Limalevu, Research Assistant, Institute of Applied Sciences and the Pacific Center for Environment and Sustainable Development, University of the South Pacific

The Institute of Applied Sciences and the PACE-SD at the USP collaborated on the Community Based Adaptation to Climate Change Project being run in seven different project sites. The institute had engaged in efforts to mainstream gender in an integrated coastal management (ICM) framework for the Locally Managed Marine Area (LMMA) project. The Adaptation to Climate Change project utilises participatory learning and action methodology that involves a five-step process through a bottom-up approach. Initially, a trainer's workshop instructed the facilitators in gender mainstreaming through the ICM and LMMA. At the same time, training occurred at the national level, followed by training at the community level. With the availability of gender disaggregated data, it was possible to target programs in the preferred roles of women's and men's groups.

Culture is dynamic and while some changes facilitate gender consideration some do not. Good project leadership ensures positive gender consideration. Proper participatory approaches can facilitate positive gender consideration.

Leone Limalevu

The PACE-SD project focuses on management of coastal areas and watersheds. To ensure participation of women and men in gender-sensitive projects PACE relies on the participatory learning and action method to engage communities in using their knowledge to develop strategies. By having women facilitators, the project benefited from increased interaction with a broader base of community members. Feedback from target communities in the climate project described difficulties experienced in understanding technical terms, such as El Niño and La Niña, and this encouraged the project team to focus on translating scientific terms into understandable lay terminology. The approach developed awareness throughout the community in expected impacts from climate change. Another aspect learned with working in a gender-sensitive way was to respect the roles and duties of members of the community, including the scheduling of meetings, workshops and activities.

By integrating gender into the approach, the projects have had more success in working with leaders and practitioners to manage natural resources. By consulting all segments of the community, the development of water resources addressed current needs and anticipated longer term water availability issues. The project teams worked with the communities to develop shoreline protection measures as well. The integrated approaches enabled the development of projects that built resilience in the communities.

The DSAP project involved different types of agricultural development, with some crops involving more men farmers and others involving more women farmers. By using participatory methods, the groups were able to specify needs and challenges related to the resources they had used and had responsibility for maintaining. Understanding needs at this deeper level enabled proactive methods for addressing problems, such as enhancing the soil in erosion prone areas and developing home gardening methods. The project also revealed that some segments of the population did not know how to prepare crops for consumption. This led to training on food preparation. By really engaging the community, food security improved.

Integrated gender, risk reduction and climate change adaptation: Secretariat of the Pacific Community's Development of Sustainable Agriculture in the Pacific Programme

By Mereseini Seniloli, Coordinator, Development of Sustainable Agriculture in the Pacific, Micronesia, Land Resources Division

The Development of Sustainable Agriculture in the Pacific program uses participatory approaches to work with local farmers throughout the Pacific to improve their food security and livelihoods, which improves resiliency to disaster risks and impacts to climate change. While the focus is on sustainable agricultural production, the benefits have been to improve the quality of soil, enable drought or saltwater resistant crops, improve irrigation systems, manage pests and diseases, evaluate tissue plant cultures, terrace and plant hillsides to prevent landslides and runoff, and ensure the pervasiveness of home gardens to improve accessibility of nutritious foods.

Implemented in 17 Pacific Island countries, the project employs a gender analysis in the participatory approach and design of the project. Staff and team members receive gender sensitivity training to incorporate gender analysis approaches and DSAP has gender focal points. With the Pacific Platform for Action for women as basis for the approach to engaging communities, DSAP builds capacity of both men and women. It has increased technological training and participation of women.

In our Climate Witness Programme project in the Lau Group, local knowledge about weather and climatic changes was merged and compared with information from the meteorological services. This information was then used as the basis of water storage plans which has proven successful. It was important to use existing local knowledge as well as the translation of technical data in lay terms so that women who were involved in the project understood the data and could make plans around this.

Monifa Fiu
Marine Scientist
Contact WWF, South Pacific
Programme

The WWF Climate Witness Project is another successful participatory example. The WWF developed local monitoring programs for coastal and marine resources. To access the most appropriate community members and find out who used the resources, the program targeted community leaders. These leaders trained other community members to become 'witnesses' to monitor changes in ecosystems and resources so interventions could be developed based on local and external scientific information.

Fisheries, a major economic resource for the Pacific, is affected by climate change. Climate variability—such as movement of warm water to other areas of the Pacific and changes in species size during ENSO events—has already caused significant changes in fisheries and there is no doubt longer-term changes resulting in climate extremes will also negatively affect the industry.

Recent studies have demonstrated that gender dimensions, including shifts in where women and men work, are connected and affect the fisheries sector. The most immediate impact of climate warming is the threat to corals and the near-shore habitat where many women fish for subsistence rather than financial benefit. Threats from climate extremes and ocean acidification could increase and have an even greater negative impact on the socioeconomic wellbeing of women and their families. The varied impacts of climate to the people of the Pacific related to resource and economic participation in fisheries sectors demonstrates that climate will exacerbate differences related to gendered divisions of labour. More research is needed to identify longer-term impacts on the resources and human populations. Participatory methods expand the discussion around risk reduction and engage sections of the population that may otherwise be left out of planning or strategy development to help the region adapt to changes in climate. In this way, environmental sectors, community planners, health services, NGOs and private business can engage and play a valuable role in addressing risks.

Participatory methods and gender analysis can help identify areas of resilience in resource sectors that will be impacted by climate change. Further investigation and more case studies are needed to identify how adaptation programs should be developed. The Small Islands Chapter of Working Group II for the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) identifies areas of likely significant change, such as water availability, agriculture, health, biodiversity, forests, coral reefs, marine resources, erosion and shoreline features, and fisheries. Integrating gender analysis through traditional entry points and structures in the community makes it possible to reduce some negative climate impacts.

Fishing and gender: the Pacific experience



Niue woman gleaning reef flat



Scoop net "kuki" to capture smallfish, Futuna.



Women selling fish at market.

Dr Veikila Vuki, University of Guam and Editor of 'Women in Fisheries'

Fishing is the cornerstone of livelihoods in the Pacific. It generates income through pelagic fishing in EEZs, tuna canneries and fish processing, sashimi transshipment, sales to hotels and restaurants in tourist areas and recreational fishing operations. Not only is fisheries an important economic sector contributing to national revenues, it provides subsistence food resources and has cultural and ceremonial value in island lifestyles.

Women and men have traditionally participated in fishing, but there are differences in the methods each uses and the stocks they catch. Gender roles in fishing across the Pacific have also evolved with recent changes in lifestyles, nutrition and economic systems. Men are involved more in deep-ocean, pelagic fisheries and commercial fishing whereas women are involved primarily in collecting invertebrates in near-shore areas.

Women and men face different environmental impacts depending on where they fish. Coastal erosion will impact upon where women fish. Environmental impacts, such as rising sea temperatures, will reduce fish stocks and result in more male unemployment. As a result, both women and men need to be included in policy development for resource management. Women's fishing practices render them important participants in sea-level monitoring and coastal protection projects. However both sexes may want to participate in all climate change programs and policy processes given the inter-connected nature of the environment. By assessing specific impacts in women's and men's participation in fisheries, policies will better target livelihood needs.

Positive actions for the long-term sustainability of fishing and resource management in the Pacific include shifting the emphasis from commercialisation to conservation. With today's emphasis on establishing and maintaining marine-protected areas, the islands must continue to focus on longer-term food security. Support for post-harvest processes is needed as a way of contributing to food security. Successful projects and approaches for supporting fisheries involve participatory approaches that include gender dimensions of resource management, establish critical partnerships among governments, NGOs and communities, and support micro-financing for sustainable resource management.

Gender face of energy: the Pacific Energy and Gender Network



By Rupeni Mario, Energy Adviser, Community Lifelines Programme
South Pacific Islands Applied Geoscience Commission

The South Pacific Islands Applied Geoscience Commission's (SOPAC) Community Lifelines Programme emphasises energy development and security. The Pacific Islands have not been a real contributor to the pollution and energy consumption problems generally considered as drivers of climate change around the world or been strong targets of carbon reduction program, yet they are experiencing significant issues relating to these rapid changes in climate. For electricity, most islands rely on imported fossil fuels and supplies can be threatened from severe storms and rising costs. The Energy Section of the Community Lifelines Programme focuses on improving community access to energy so livelihoods in Pacific Island countries are sustained and so they can build resilience to the threat of disaster and further changes in climate.

The program recognised the differences in energy use and needs based on gender divisions of labour—women spend more energy performing household chores, caretaking in homes and communities, and gathering and managing household fuel and water.

The Pacific Energy and Gender Network (PEG) formed to understand the energy demands of rural and urban populations of the Pacific, with attention to poverty reduction and development associated with the Millennium Development Goals (MDGs). The network helps monitor changes in energy use and consumption as social, economic, and development changes occur in the Pacific Islands. The concept of integrating gender in the energy sector is guided by the PEG Strategic Action Plan together with regional documents such as the Pacific Plan, Pacific Islands Energy Policy (PIEP) and the Pacific Islands Climate Change Framework (PICC). Despite this, more emphasis is needed at the national policy and community levels to reveal and address impacts from changes in energy use.

Gender mainstreaming in formal and informal areas of disaster risk reduction and adaptation to climate change

Women are often found in much smaller numbers in formal and informal decision-making bodies and consultations on disaster risk management and climate change adaptation. They are therefore less likely to receive critical information for emergency preparedness and less likely to participate in decision making and policy development in these fields. However, as has been demonstrated throughout this publication, experiences of different areas of natural resource management demonstrate it is essential to use both women's and men's knowledge and roles in communities to build resilience.

Gender also needs to be embraced by the formal climate sector. The World Meteorological Organization (WMO), the IPCC and national meteorological services have rigid organisational structures heavily dominated by men. Nonetheless, recent studies and pushes for gender mainstreaming have opened opportunities for women to participate, without foregoing family considerations.

A large proportion of government leadership positions in disaster response are held by men. A process is underway at the national level—led by SOPAC and supported by the UNDP's Pacific Centre and Pacific Islands Forum Secretariat (PIFS)—to mainstream disaster risk management using a whole-of-government policy and financial planning approach. This will provide opportunities to redress gender imbalance because women in leadership positions from other sectors of government and civil society will be drawn into decision making and policy processes for disaster risk management.



Building capacity via technology (FALEALUPO-TAI WC Project).

Gender equity and cultural diversity is important in staff recruitment as is decision making through consensus and consultation.

Nancy Jolo
Secretary General
Solomon Islands Red Cross

In the Pacific, as elsewhere, women are more likely to hold leadership positions within civil society compared to government. This is certainly the case with the Pacific Red Cross movement which, as an auxiliary to government, plays a primary, mandated role in responding to disasters and vulnerability within the region.

At the informal level with disaster risk management, the extent that women participate and lead in decision making is less clear, largely because there is not sufficient research or data. Indeed, the last substantial body of research was undertaken in 2002 by the SPDRP in four different Pacific Island countries. The study clearly demonstrated that women and men had different, although sometimes overlapping, roles to play in disaster preparedness and response and that overall women were less likely to liaise with government or be involved in decision making at the community level.

Having women and men participate in leadership in these fields is essential, but not sufficient enough to automatically translate into gender-sensitive policy. There is still much work to be done if women and men in leadership and decision-making positions are to become aware of the importance of gender when developing and implementing initiatives for building community resilience.

Integrating gender in Pacific risk management

By Dr Cheryl Anderson, Director, Hazards, Climate and Environment Program, University of Hawai'i

Gender roles may be clearer in rural, more traditional island contexts. For example, the small outer islands of Yap in the Federated States of Micronesia have matrilineal systems in which women manage the land resources, including gardening and activities on land. Men are primarily responsible for building and ocean-related activities, such as fishing. In these places, disaster preparation and responses are clearly related to gender roles even though everyone in the communities works to defend where they live from disaster. For example, when there is a tropical storm warning, women gather plant clippings and food and secure children in a safe area, while men secure structures by tying down roofing and bringing boats inland before joining families in safe houses. During drought, women who understand island hydrology have been able to find drinking water to last through the emergency period.

In urban island areas, relationships related to gender roles becomes more complex. By looking at gender in the formal and informal risk management sectors, for example, it becomes clearer how divisions of labour are organised. The formal risk management sector, such as the disaster managers, water and hydrological services and meteorological services are still dominated by men. As women increasingly engage in work in these areas, there have been demonstrated increases in education and outreach in support of risk reduction. Alternatively, the NGOs that contribute to risk reduction through environmental management, health and social services, and community-based management have women in about 80 per cent of their leadership positions.

Women in meteorology or hydrology in the Pacific

By Ashmita Gosai, Climate Applications Scientist,
New Zealand National Institute of Water and Atmospheric Research

Historically, meteorology and hydrology fields have been dominated by men. More recently, efforts have increased to include women as technicians and in leadership roles. The need for more women to become involved in technical areas is needed at all levels, however.

The WMO has a gender-balance policy which states that National Meteorological Services (NMS) is required to attain balance in the workplace by offering training and jobs to women (if available). Most NMSs have been trying to fulfil this requirement but they face problems in attracting women to these technical fields. Improvements in policies and workplaces, for example, have attracted only a few to meteorology and climatology.

Local women who have been trained in climate variability and change in community workshops have shared their knowledge with the wider community. For example, women's groups in Kiribati have learnt to understand their local climate and have, in turn, translated their knowledge into easily understandable terms in local dialect. These women have, in other words, used this information for their own benefits and shared it with others in their village. With some shoreline changes and erosion happening so rapidly, the community-level projects emphasised the importance of integrating traditional and local weather knowledge with climate data to develop tools for building resilience. There are also examples in Kiribati where a national climate group comprising the NMS, fisheries, elders, agriculture, media and government has been established. The group meets monthly to discuss the forecast provided by the NMS and translate it into the local language, which is then printed in local newspapers.

Many technical positions in climatology are at the national level. At the national level, each country has a designated gender focal point to the WMO, however most government organisations and people in general are not aware of this or how the focal points should be integrated into policies for climate risk management. Additionally, many climatology positions are not conducive to families. Many trained female technicians leave the profession when they have children, further reducing female involvement in the climate industry.

At the global and regional level, organisations such as the IPCC and the Council of Regional Organisations in the Pacific are supposed to be gender sensitive. Most official representatives are men, however, with side events organised around gender and climate issues. However, the WMO gender focal group are working with NMSs to include gender issues at a higher level like the IPCC and WMO congress.

Historically, meteorology and hydrology fields have been dominated by men. More recently, efforts have increased to include women as technicians and in leadership roles.

Ashmita Gosai

Section Four

Collaborating in integrating gender in disaster risk management and adaptation to climate change

The forum's main aim was to begin to identify areas for potential collaboration among governments, agencies or within communities to integrate disaster risk reduction and climate change adaptation in the Pacific by better understanding gender dimensions.

Program planning efforts for disaster risk response and adaptation to climate change

To begin effecting change, programs need to assess their capacity and organisational entry points. Some may rely on partnerships with civil society and NGOs that work with communities rather than relying on governments to enact change.

However, there are opportunities to advocate with governments to integrate gender and traditional knowledge into National Action Plans for Disaster Risk Reduction and Disaster Risk Management (NAPs) and the National Adaptation Programmes for Action (NAPA) planning processes that will help countries access funding.

Here are some of the many organisational entry points which represent opportunities for integrating the themes discussed at the forum.

- **AusAID** – AusAID has several ongoing climate-change programs and has supported resilience-building activities in the Pacific for more than a decade. Current activities include: the Sea Level and Climate Monitoring Project, which collects high-quality, long-term data on absolute sea-level movements across the region—to help Pacific countries monitor and plan for changes; and the Vulnerability and Adaptation Initiative, which provides community grants for practical adaptation activities such as increasing water storage, improving food security through crop diversification, and coastal stabilisation through replanting of mangroves. The Australian Government has a new International Climate Change Adaptation initiative which will significantly increase adaptation measures in the Pacific. AusAID encourages gender themes to be integrated into proposals.
- **Pacific Red Cross Movement** – The International Federation of the Red Cross, Red Crescent Societies and National Red Cross Societies in the region work in areas such as climate change adaptation, disaster preparedness, risk reduction and health. The movement's auxiliary role to government, large volunteer base and community focus present unique opportunities in areas such as advocacy, awareness raising, education and training for integrating gender themes throughout their programming to build resilient communities.
- **Pacific Regional Environment Programme** – Has the mandate on climate activities throughout the Pacific. By using participatory methods in communities to develop climate adaptation projects, the program

integrates gender into their approaches and offers gender training to the Secretariat of the Pacific Regional Environment Programme (SREP) staff.

- **SOPAC** – Several programs under SOPAC target resource management are key sectors in climate, such as water and energy. SOPAC also manages programs in community risk reduction and oceans where there will be significant impacts from changes in climate that will have different gender impacts. Current opportunities exist as the SOPAC assists national governments in the development of National Action Plans for Disaster Risk Management to mainstream gender into planning and policy for disaster risk management and to integrate climate information in an effort to dovetail efforts with the NAPA planning processes that will aid countries in accessing funding for climate adaptation projects (which are also usually hazard mitigation and community resilience projects).
- **SPC** – Several SPC programs focus on women's empowerment through the Pacific Platform for Action. This has been embedded in the approaches to thinking about resource sectors and has encouraged gender mainstreaming in fisheries and agriculture programmes. The SPC could document and distribute lesson learnt from gender mainstreaming.
- **UNDP** – This is the United Nation's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life.

The Pacific Centre is the UNDP's knowledge and regional program hub in Suva, Fiji. It focuses on 'small islands developing states' in the Pacific and serves 15 Pacific Island countries. The centre aims to boost aid efficiency in the region by providing policy advice and technical assistance and support in the areas of crisis prevention and recovery, democratic governance, poverty alleviation and achieving the MDGs. Gender equality is a core goal of human development, and the UNDP promotes this through gender mainstreaming. The UNDP's Bureau for Crisis Prevention and Recovery is committed to the UNDP's Eight-Point Agenda for Women's Empowerment and Gender Equality in Crisis Prevention and Recovery. The UNDP pays significant attention to managing how disaster risks and adapting to climate change affect gender on a global level. In this context, the Pacific Centre encourages discussion around gender perspectives on mitigation, adaptation, technology and financing in the Pacific, and provides gender-sensitive guidance to regional organisations, national authorities and civil society as they further develop policies and program in these important areas.

- **WWF's South Pacific Programme** – The WWF's Climate Witness Programme works with communities to observe and monitor change from climate.

In the Pacific, gender is attached to traditional, local ecological knowledge that has enabled communities to survive for centuries.

Dr John Campbell
Associate Professor
Department of Geography,
Tourism and Environmental
Planning
University of Waikato

Gaps, needs, constraints and opportunities for integration

Participants reflected on the results of the forum looking at common themes, gaps, needs, constraints and opportunities. This list summarises the results:

- **More research on and greater understanding of how disaster and climate change impact on social structure and gender is needed** – Specifically, more knowledge on gendered impacts, including by sector and by place.
- **Translating complex climate forecasts for communities in meaningful ways is needed** – This is so communities understand how warnings and weather information will impact upon their lives and livelihoods. This, in turn, will position them so they can make informed choices about how best to respond. Many communities do not understand some of the technical language associated with disaster reduction research and climate change adaptation. A proposed collaborative project among participants would help them translate technical information into easy-to-understand language for communities—even in local languages and dialects. Other opportunities include developing school curriculum on gender, climate change, disasters and mitigation.
- **Culturally appropriate gender training is needed** – Culturally appropriate gender training programs (technical, scientific and geographic) are needed in different communities at different levels. This could help combat some misconceptions about gender and miscommunication that could sabotage projects.
- **Sharing Pacific research in gender knowledge is needed** – More research is required on how gender roles can contribute to the vulnerability of Pacific Island communities.
- **More female decision makers and technicians are needed** – More women are needed to work in technical positions in the formal sectors of disaster risk reduction and climate change adaptation. This may represent challenges in countries with fewer human resources or where government-recruitment policies do not favour women’s participation in specialised fields because of access to training and education or challenges in balancing family roles. Few women lead disaster and climate organisations or take on government positions, especially in the Pacific, which may mean policies and programs are imbalanced or inequitable.

- **More collaboration between government and civil society is needed.** Many organisations, donors and governments are rapidly increasing their support for climate change. There are opportunities to harmonise the implementation of regional frameworks (for example, the Pacific Island Framework for Action on Climate Change (PIFACC), biodiversity and the Pacific Framework for Action on Disaster Risk Management) and opportunities to maximise funding with joint programming and collaboration.
- **The disaster risk recovery and adaptation to climate change fields need to be integrated** – The segregation of these fields has often resulted in parallel activities. There are tremendous opportunities to maximise funding and resources, which may align the goals of, and collaboration between, these fields. This need extends to integrating gender analyses into programming.

Integrating these fields would be beneficial in the Pacific where training and capacity building are costly and time-consuming because of travel. Opportunities to use advanced information and communication and technology methods, such as USP's global learning satellite network, to link the Pacific to international best-practice initiatives and organisations will be advantageous.

- **More learning on how gender influences disaster reduction and climate change is needed** – Learning more about how disaster risks and climate change impacts are influenced by gender enables better mitigation actions and adaptation practices to be developed, which, in turn, makes better use resources. Opportunities to raise awareness through technology and information-sharing networks will improve efforts to understand the gendered dimensions of risk. Collaborating on research and documentation will also improve knowledge.
- **Mainstreaming gender is needed** – This includes gender mainstreaming in organisations and agencies as well as in programs and communities. One opportunity would be to develop awareness program for donors working in the region. Peer reviews on how to mainstream gender into projects would also be beneficial.

These needs, constraints and opportunities demonstrate how organisations can begin collaborating in the Pacific. There are many exciting ways to build resilience from disaster risks and climate change by integrating gender and traditional ecological knowledge into programming.

Section Five

Conclusions on the gendered dimensions of disaster risk management and adaptation to climate change

The Forum on the Gendered Dimensions of Disaster Risk Management and Adaptation to Climate Change highlighted the importance of gender as a cross-cutting theme in addressing risks from disasters, environmental degradation and climate change in the Pacific Islands. An important finding was that many organisations and governments have undertaken projects within communities that use participatory approaches and gender analysis, and these have succeeded in reducing risks. In the Pacific, gender is attached to traditional, local ecological knowledge that has enabled communities to survive for centuries. This knowledge, if blended with innovative technologies, can over time enhance resilience from disasters and climate change.

The forum emphasised the importance of using integrated approaches that include decision makers and leaders from communities, organisations, businesses and governments to heighten support at all levels. Disaster and environmental research and fieldwork have shown that risks must be addressed where disasters happen, and this requires multidisciplinary and integrated management approaches. Lessons learned in the area in disaster risk reduction and environmental management can be applied to climate change adaptation strategies.

Presentations given and discussions held at the forum focused on several areas where approaches in mainstreaming gender have proven to be beneficial. In the area of agriculture, for example, the Secretariat of the Pacific Community Land Resource Division's Development of Sustainable Agriculture demonstrated the importance of engaging women, men and youth in communities to build resilience and food security. The USP's Pacific Center for Environment and Sustainable Development had similar success using gender analysis and inclusive, participatory approaches in enhancing water resources and engaging in coastal resource management. The Pacific Regional Environment Programme's pilot project on CBDAMPIC shows that approaches which engage the community through various organisations, including village chiefs, women's groups, and church youth groups, and simultaneously consult and educate government leaders and decision makers at top levels, ensure the broadest support for program implementation. SOPAC's coordination of the PEG Network is an example of a regional program that aims to understand and address energy use and resource needs for women and men in rural and urban islands. Even though forum participants shared information on numerous successful programs in many different sectors, they also recognised that challenges remain. They discussed gaps, constraints and programs that were not able to reduce risk because they did not incorporate participatory approaches and/or integrate gender.

Community participatory approaches to reducing the risk of disaster and adapting to climate change that have integrated gender illuminate the division of labour. In urban settings and in government, gaps remain in understanding divisions of labour in risk-management sectors. Fewer women hold leadership positions in governments or in agencies with mandates to reduce risk. Men hold the majority of technical positions (such as meteorologists, climatologists, geographic information systems analysts, structural and civil engineers, and physical scientists). Even so, Pacific Island students, female and male, need more training in all of these areas. To develop resilience, Islanders need to build the capacity needed to reduce risk using new technologies. The forum highlighted that successful strategies require women and men to be effectively engaged in decision making at all levels in both rural and urban communities.

Ultimately, the forum highlighted how strategies used for centuries to deal with disasters and changes are highly adaptable. The ability to make adjustments and identify alternatives has been part of agriculture and food security for a long time. However, traditional coping mechanisms cannot by themselves deal entirely with today's climate variability and change, which is forecasted to occur more frequently and with greater intensity. What is required is a blend of traditional knowledge and modern scientific approaches to the environment. This will require community consultation to ensure ownership of new ideas and to ensure appropriate programs are implemented. Since traditional and local knowledge is gender specific, it is important to ensure that experts from multiple areas of society (demographically representative of gender and age groups) are targeted and consulted. Building resilient island communities capable of reducing the impact of disaster and adapting to climate change requires a comprehensive, holistic approach.

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Appendix 2 - Biographical statements

Biographical statements of forum resource people and presenters

Dr **Cheryl L Anderson** is the Director of the Hazards, Climate, and Environment Program, University of Hawai'i (UH) Social Science Research Institute and affiliate graduate faculty with the UH Department of Urban and Regional Planning. For the last 16 years, she has conducted research and planning projects on climate and disaster risk management in the Pacific and Southeast Asia, with attention to gender and traditional ecological knowledge aspects of risk reduction. Activities include: convening the 2004 Gender Equality and Disaster Risk Reduction Workshop and drafting the Honolulu Call to Action for the United Nations International Strategy for Disaster Reduction's World Conference on Disaster Reduction; developing Hawai'i State's Hazard Mitigation Plan; and participating in the June 2007 Expert Meeting of the Intergovernmental Panel on Climate Change's Task Group on Data and Scenario Support for Impact and Climate Analysis in Nadi, Fiji. She serves on several disaster risk management advisory committees, such as the Hawaii State Hazard Mitigation Forum and the Pacific Risk Management 'Ohana executive board and chairs the Pacific Climate Information System Research and Assessment Working Group.

Dr **John Campbell** is an Associate Professor in the Department of Geography, Tourism and Environmental Planning at the University of Waikato. His research interests are in the human dimensions of natural hazards and climate change in Pacific Island Countries. His recent publication, *Traditional Disaster Reduction in Pacific Island Communities*, has been referenced extensively in this publication and is based on a larger project conducted by Institute of Geological and Nuclear Sciences Science and funded by the New Zealand Foundation for Research, Science and Technology.

Ms **Kristie Druzca** works at AusAID. As an anthropologist and gender specialist her interests include traditional knowledge, customary practices and the impact of culture on gender relations. As AusAID's Pacific Gender Focal Point, Kristie worked with the United Nations Development Programme Pacific Centre to organise the Forum on the Gendered Dimensions of Disaster Risk Reduction and Climate Change in the Pacific Region. She now works as AusAID's gender and economic reform manager in the Pacific Branch, specialising in women's economic empowerment. In August 2008, Minister for Foreign Affairs, Stephen Smith, accepted the MDG3 Gender Equality Champion Torch from Denmark's Ambassador to Australia highlighting the Australian Government's commitment to gender equality and women's empowerment.

Ms **Ashmita Gosai** has worked as the Climate Applications Scientist with the New Zealand's National Institute for Water and Atmospheric Research for six years. She previously worked as the Climate Applications and Development Manager for the Fiji Meteorological Service. Ms Gosai works with Pacific communities and publishes the *Island Climate Update*, which provides forecast information on climate variability and change for Pacific Island countries. She has also published research on climate and respiratory illness. Ms Gosai is New Zealand's Focal Point for Gender Issues for the World Meteorological Organization.

Ms **Ruth Lane** holds the position of Regional Disaster Risk Reduction Delegate for the International Federation of the Red Cross and Red Crescent Societies' Pacific delegation, based in Suva, Fiji. In this capacity Ms Lane provides technical support to 14 Red Cross National Societies on programming in disaster risk reduction and climate change adaptation as well as representing the federation regionally on disaster risk reduction and climate change adaptation. Previous to this, Ruth worked with the UNDP Pacific Centre in Suva as a Disaster Risk Reduction Officer, where she took the lead in organising, in partnership with AusAID, the Forum on the Gendered Dimensions of

Disaster Risk Reduction and Climate Change in the Pacific Region. Ms Lane is committed to pursuing the outcomes from the forum and more generally the strengthening of gendered approaches to disaster risk reduction and climate change adaptation in the Pacific.

Mr **Peniamina D Leavai** is a UNEP-IESD Tongji University graduate researcher. He co-authored Samoa's National Adaptation Program of Action with the National Climate Change Country Team. A former Principal Climate Change Officer of the Ministry of Environment, Mr Leavai's current research work is on human rights and climate change in Samoa. He was involved in Samoa's pilot projects for the Capacity Building for the Development of Adaptation Measures in Pacific Island Countries, working with SPREP. He holds a Bachelors of Science degree (Earth Science and Geography) from the University of South Pacific, Suva, Fiji.

Mr **Leone Limalevu** is a Research Assistant in the Pacific Centre for Environment and Sustainable Development (PACE-SD) and has worked with Pacific communities in PACE-SD's Climate Change Project to develop climate change adaptation capacity. He has participated in the June 2007 Expert Meeting of the Intergovernmental Panel on Climate Change's Task Group on Scenarios for Climate and Impact Assessment (working group 1) in Nadi, Fiji, and in the Pacific Communities and Climate Forum in November 2007.

Mr **Rupeni Mario** is the Energy Adviser at SOPAC and has spent 10 years in the region working on energy, focusing on providing technical assistance and advice to respective SOPAC member countries. His interests are in approaches that are gender sensitive, sustainable, applicable and adaptable to local community situations.

Mr **Simon McGree** is the Manager Climate Services, Fiji Meteorological Service. He joined the service in September 2000. His research interests include climate change impacts in Pacific Island countries and both paleo and present day El Niño-Southern Oscillation impacts on climate and hydrology. He is currently the Fiji representative to the Intergovernmental Panel on Climate Change.

Ms. **Rebecca McNaught** is the Senior Programme Officer, Red Cross/Red Crescent Climate Centre. Rebecca joined the Climate Centre team following work as a disaster risk reduction delegate for the International Federation of Red Cross and Red Crescent Societies in the Pacific. She currently supports National Red Cross and Red Crescent Societies and the Federation in South Asia and the Pacific for the Climate Centre as well as working globally on their capacity building and youth action plans. She has an environmental science degree from Deakin University in Australia and is based in Melbourne, Australia.

Ms **Mereseini Seniloli** is the Participatory Extension Officer for Micronesia responsible of coordinating activities for the DSAP Project for the Secretariat of the Pacific Community. She coordinates the DSAP activities in Federated States of Micronesia, Marshall Islands, Nauru and Palau. The DSAP countries begun by the conduction of Participatory Rural Appraisal surveys to identify agricultural production problems and solutions; developed National Log Frame which eventuated into a schedule of activities conducted by the DSAP Graduate Research Extension Assistants in the countries. Ms Mereseini's strengths are in agricultural research and extension, participatory methods, gender issues and weeds acquired from 20 years of work. She has also worked in 14 Pacific Island countries and gained a lot of experience in working with different Pacific Islands' cultures sharpening her skills as a community development worker, trainer, researcher and extensionist. She gained valuable experiences in working with government agencies, NGOs, regional and international agencies, and as a freelance consultant. Ms Mereseini has a Bachelor of Agriculture Degree and a Post Graduate Diploma (Sociology) from the University of South Pacific.

Ms **Lavenia Tawake** works as a Project Coordinator with the PACE-SD on Climate Change Adaptation Projects using Participatory Learning and Action techniques and gender analysis with local communities. She has earned her Master's of Science degree in Marine Science from the University of the South Pacific Institute of Applied Science and serves on the USP Biodiversity and Conservation Research Team.

Dr **Veikila Vuki** is the Director of the Secretariat of the Pacific Community Women-In-Fisheries Information Bulletin editor. She is also adjunct faculty to the University of Guam and the University of the South Pacific. She has worked with the Fiji Fisheries Division and is presently the Director of Oceania Environment Consultants, a consulting firm based in Guam. Dr Vuki has wide-ranging knowledge of issues related to coastal fishing communities, coastal management, women in fisheries and fisheries development. She is from Ono-i-Lau and has 20 years experience in Australia, Fiji, Samoa, Cook Islands, Kiribati, Vanuatu, the Federated States of Micronesia, Guam, Marshall Islands and Palau. She holds a doctorate in coral reef ecology from Southampton University in England and a Master of Science degree in marine biology and marine botany from James Cook University, Australia.

Ms **Stephanie Zoll** is the Disaster Risk Management Officer of the Crisis Prevention and Recovery Unit at the UNDP Pacific Centre. Her role at the UNDP comprises key achievement areas one of which involves mainstreaming disaster risk reduction at local, national and institutional level in Pacific Island countries. She is the focal point of a number of Local Level Risk Management pilot projects in the Pacific and is well experienced in vulnerability and capacity assessment. She also works on gender analysis with local communities.



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