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ISSUES FROM PACIFIC ISLANDS ON DISASTER PREPAREDNESS

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Issues from Pacific Islands on Disaster Preparedness

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Abstract

A key mutual objective of Pacific island nations and communities is that 'Pacific island communities are safe and people feel very confident about their safety'.

This is an objective shared by the various public, private and regional agencies that are part of the Pacific island nations and communities' disaster and emergency management arrangements.

Within the context of disasters, the safety of the community is somewhat determined by the effectiveness of disaster management and services, which in the Pacific island nations, are primarily looked after and controlled by the Government of the day. However, it is well known that another important component of safety is that individuals, organisations, industries, etc. are fully aware of the risk they are exposed to and have taken appropriate actions to mitigate and/or prepare for such emergencies.

This paper attempts to discuss issues that the Pacific island communities, regional and international agencies have developed and put in place at regional, national and local levels in order to have a safer, more resilient Pacific island nations and communities to disasters, so that Pacific peoples may achieve sustainable livelihoods and lead free, worthwhile and happy lives.

1. Introduction

The Pacific Ocean covers almost one-third of the earth's surface. Generally thought of as a region of small island countries with relative small populations, the South-West Pacific region is extremely large – see *Map 1*. It stretches from Guam in the north to New Zealand in the south and from Australia in the west to Pitcairn Island in the east. The distance from Perth in Western Australia to Pitcairn Island is similar to the distance from Los Angeles to Istanbul. It is a region nearly as large as Asia that overlaps both the equator and the International Date Line.

The islands, especially in the south-west, are covered with coral atolls, active volcanoes, tropical jungles, temperate rain forest, volcanic peaks and wide desert plains and of-course a huge body of ocean. Its countries range in areas as small as Tokelau, which consists of three coral atolls of a total land area of 12 sq. km. to Australia, the sixth largest country in the world. These small island countries spread over vast distances and claim large Exclusive Economic Zones (EEZ), Kiribati, as wide as the USA has a land area of only 811 sq. km. in an EEZ of 3.6 million sq. km. The total EEZ areas of the island countries exceed 38 million sq. km. Therefore, distance is a dominating factor in the region.

As a result, the Pacific island countries are fragmented, dispersed small land areas with large territories, low populations with multiple cultures and languages, and 'out of world mainstream'. See *Table 1* – Summary of Key Statistics Relating to Regional Countries.

Some have divided the Pacific island countries into two groups; one consisting of Small Island Developing States (SIDS) including Papua New Guinea and the two developed countries of the region, Australia and New Zealand.

This paper focuses mainly on the SIDS.

The largest of the island countries of the Melanesian Group include Papua New Guinea, Fiji, New Caledonia, Solomon and Vanuatu, with over 90% of the island land mass and 85% of the population. All these islands lie relatively close to the tectonic plate boundaries and consist mainly of mountainous islands with Papua New Guinea having the highest mountains in the region. All these island countries have some atoll islands. In addition, these islands have the best natural resources with fertile soils and each with some exploitable mineral wealth.

Fiji and New Caledonia have more diverse and secure economies dominated by cash cropping and mining with increasing growth in garment manufacture, sale of natural water and timber industry. Tourism is also an important generator of work and revenue with a much higher proportion of population already urbanised.

The smaller island countries of the Polynesian Group include Samoa and Tonga. Both have strong economies mainly through agricultural activities with cash cropping for exporting.

The predominantly atoll island countries of American Samoa, Cook Islands, Federated States of Micronesia, Guam, Kiribati, Marshal Islands, Nauru, Niue, Palau, Pitcairn, Tokelau, Tuvalu and Wallis and Futuna have all small land areas but they vary from single small islands to archipelagos spread over enormous areas of ocean. Their EEZ areas are rich in marine resources and the licensing of foreign vessels to fish those waters makes important contribution to their economies. Land resources are much more limited. The islands have mainly sandy soils of limited fertility able to support a restricted range of foodcrops and vegetables. All of their economies are vulnerable and many are aid dependent. Many of the problems include the lack of drinking water and contamination, sea level rise, coastal erosion and population growth.

1.1 The People

Distance has been a significant influence on the settlement and development of countries in the region. Populations are distributed unevenly with the three largest islands of Australia, New Zealand and Papua New Guinea consisting of a total population of nearly 30 million people while the total population of the other island countries is less than 3 million.

The indigenous people of the region fall into four major ethnic groups. The Polynesian people live in the east of the region in an area stretching from the Hawaiian islands in the north to New Zealand to the south and from Easter Islands to the east to parts of the Solomon Islands in the west; Melanesians live in the central west of the region from the islands of Papua New Guinea through the Solomon Islands, Vanuatu and New Caledonia east to Fiji; Micronesians live in the north west, from Palau to Kiribati; and the Aboriginal people live in Australia.

Since the colonial times, the region has been settled by large numbers of people from other parts of the world. People of European origin mainly from Western Europe, Australia and New Zealand were followed by others from the Indian and Asian sub-continent, and as communications improved, people from other parts of the world have also arrived in small numbers. More than a third of the population in Fiji is of Indian origin whose ancestors were brought to Fiji by the British colonial authorities to work in sugar plantations.

Language has a significant influence on the culture and tradition in the region. The Polynesian languages share a common root that makes it possible for people from the various Polynesian countries to understand each other and retain common cultures. Communication in the Melanesian countries is very much difficult since most communities

developed in isolation. As a result the people of the major Melanesian countries speak many different languages and have had to adopt one or two artificially developed languages to enable people to communicate easily. Each country has an official language and all the countries also use English as an official language.

To facilitate communication in the region and with the rest of the world, English or French have been adopted as alternative official languages in each regional country depending on the former colonial powers with the greatest influence during the eighteenth and nineteenth centuries. Only Vanuatu, which was governed by France and Britain, uses both French and English as official languages in addition to Bislama, the artificial language of that country.

2. Brief Background on Disasters in the South Pacific:

Countries in the South Pacific are at risk from a wide range of hazards, geological, meteorological, biological, environmental and social. Tropical cyclones are the most frequent cause of disasters in the region, but other hazards have the potential to cause greater losses.

Except in Australia and New Zealand, disaster management in the region was very simple and basic until the start of the International Decade for Natural Disaster Reduction (IDNDR) in 1990. There was emphasis on disaster response and some attention was being paid to disaster preparedness but disaster reduction and prevention measures were only being implemented in a fragmented manner, usually as a by-product of development projects.

Compiling details of disasters in the Pacific Island Region is particularly difficult because of poor record keeping, short corporate memories and limited national database collection. Economic costs of hazard impacts are rarely assessed despite the significant effects they have on development and on national aspirations. Understanding of the difference between occurrence of a hazard event and its impact as an emergency or disaster tends to be restricted with death tolls the most likely measurement. See *Table 2* - Disasters in the Pacific Islands Region: 2000-2005.

While disasters in the region may appear small compared to terrible events that occur in Africa and Asia, it is helpful to consider the proportionality mentioned in the Barbados Plan of Action. Every person and every asset contributes to the viability and development of a developing country. In a small country with a small population and limited resources the contribution of the individual is proportionally much greater than that of an individual in a larger or more developed country. A Tropical cyclone death toll of twenty people in a population of one hundred and ninety thousand people is equivalent to a death toll of 13,300 in Japan, 6,200 in France or 29,600 in the United States of America. None of these death toll would be considered minor. The impact on national consciousness and even on the economy would be devastating and would inspire major political support, searching enquiries and extensive recovery assistance to the affected communities. Yet small islands developing States in the Pacific are expected to bounce back quickly with limited recovery assistance being provided to supplement their limited resources. Most of these disasters may be considered as a small event by world standards, but a catastrophic event for a Small Island nation. It is not unusual for the direct cost of a disaster in this region to equal half of the annual government budget, some even exceed that budget even without taking account of the indirect costs. Disasters in the Pacific rarely make world headlines but their local impact can be more damaging to an affected country than that of much greater to an overseas country. See *Table 3* – Pacific Island Countries Estimated Level of Vulnerability to Specific Natural Hazards.

3. Regional Disaster Management

Regional activity in relation to disaster management is relatively recent in the Pacific. Various donor-supported national disaster preparedness activities had been taking place in the region since at least the early 1980s with the level of support increasing after Tropical Cyclone Isaac struck Tonga in 1982 and after the threatened eruption of volcanic cones around Rabaul in Papua New Guinea in 1984. A number of these activities were conducted by, or under the support of the Office of the United Nations Disaster Relief Coordinator (UNDRO) but the approaches were fragmented. Although national disaster management structures and plans had been developed in a number of countries, there was no regional coordination or management structure in place. Fortunately, similar initiations had been developed in many of the regional countries as a result of cooperation between countries and between the two major supporting donors, namely UNDRO, now the UN Office for Coordination of Humanitarian Affairs (OCHA), and the Australian Development Assistance Bureau (AIDAB), now the Australian Agency for International Development (AusAID).

In 1990, UNDRO established a South Pacific Programme Office (SPPO) in Suva, as a focal point for the provision of disaster management assistance to the region. And in March 1991, UNDRO SPPO convened a Seminar in Suva with the theme "Strengthening Disaster Management in the South Pacific". The seminar was attended by representatives of ten Pacific island countries as well as representatives of various regional and UN agencies, aid donors and non-government organisations (NGOs) and made twenty four recommendations.

In 1992 the United Nations Department of Humanitarian Affairs (DHA) replaced UNDRO and became DHA-SPPO and the office continued to function as a focal point for disaster management activities in the region. In 1994 the agency began to implement the UNDP South Pacific Disaster Reduction Programme (SPDRP) which became a key regional activity over the years.

Despite the value of the activities of DHA-SPPO, regional countries considered appropriate that it would be more beneficial for coordination to be carried out by a regional organisation. So in 1995 after further discussions, the responsibility or mandate was transferred to the South Pacific Applied Geoscience Commission (SOPAC). Naturally, DHA-SPPO moved to SOPAC transferring its activities and some staff to SOPAC and presently established its Disaster Management Unit assuming the disaster management focal point role.

3.1 Responsibilities of Regional Organisations

In 1995, **SOPAC**, the regional organisation responsible for coordination of research into geological processes, was nominated as the regional organisation with responsibility for disaster management coordination. Its overall role is to contribute to sustainable development, reduce poverty and enhance resilience for the people of the Pacific by supporting the development of natural resources, investigating natural systems and the reduction of vulnerability, through applied environmental geosciences, appropriate technologies, knowledge development and support of Pacific issues. Its three operational divisions all have roles that are directly relevant to disaster reduction as their mandates are to focus on:

* assisting member countries to better understand and manage natural non-living systems;
* strengthening community lifelines by enhancing access by member countries to affordable and sustainable water resources, sanitation services, energy and information and community technologies; and

* assisting countries to incorporate comprehensive hazard and risk management practices into national development plans to improve the effectiveness of disaster resilience, preparedness and response.

SOPAC represents the region on the ISDR Taskforce.

The role of the **South Pacific Regional Environment Programme (SPREP)**, based in Samoa, is to promote cooperation in the South Pacific region and provide assistance in order to protect its environment and to ensure sustainable development for present and future generations. Its annual work programmes in natural resources management, pollution prevention and waste management and climate change are very much relevant to disaster reduction.

The oldest regional organisation in the Pacific is the **Secretariat of the Pacific Community (SPC).** It provides technical advice, assistance, training, research and support to member countries in relation to a broad range of issues relevant to disaster reduction such as:

* agriculture, including plant protection and pest management, animal health and protection, and veterinary health;
* marine resources, including training of seafarers to promote safer ships and cleaner seas; and
* social resources, including monitoring and surveillance on health issues comprising HIV/AIDS, nutrition and non-communicable and vector-borne diseases, population issues, and human resources development.

The **Pacific Islands Forum Secretariat (PIFS)** is the administrative arm of the Pacific Island Forum and undertakes programmes and activities that support or implement decisions made by the Forum leaders. In relation to disaster management, the Forum only direct involvement is the management of the Regional Disaster Relief Fund, providing grants to regional countries experiencing disasters.

It is also responsible for promoting regional and international cooperation and monitoring international developments of interest to the region. It represents the region at international meetings on subjects that include climate change and sustainable development.

The **University of the South Pacific (USP)** has campuses in Fiji, Samoa and Vanuatu at which undergraduate and post-graduate education is provided to regional students. It carries out research programmes, many in cooperation with other regional organisations. The University is paying a lot of attention to studies and research relating to the vulnerability of regional countries to natural, environmental and other hazards and increase the resilience of communities to the effects of those hazards and the use of space technologies to effectively manage resources and also to assist in disaster management.

The **Fiji School of Medicine (FSchM)** aims to be a centre of excellence in quality health education, training and research, serving the communities of the Pacific. The school provides undergraduate and postgraduate programmes through four schools namely: Medical Science; Public Health and Primary Care; Health Sciences and Oral Surgery.

Coordination is Vital

These agencies together with other agencies that have their own specialised responsibilities, are members of a high-level body known as the **Council of Regional Organisations in the Pacific (CROP).** CROP plays an advisory function on key policy and operational issues

and seeks to take advantage of opportunities for sharing and pooling of the region's resources.

Tropical cyclones warning systems in the region are coordinated by the **Tropical Cyclone Committee for the South Pacific and South-East Asia (TCCSP)** of the World Met. Organisation. This committee meets every two years to review the cyclone forecasting and warning plan and progress with programmes related to all aspects of cyclone meteorology.

Other Organisations Working Regionally

In addition to the government oriented agencies operating in the region, there are other organisations whose activities, while supporting national disaster management in various ways, are conducted regionally. Major regional disaster management and disaster reduction programmes are conducted by:

The **International Federation of Red Cross and Red Crescent Societies (IFRC)** is an international humanitarian organisation whose members are the national Red Cross societies of the world. It's mission is "to improve the lives of vulnerable people by mobilising the power of humanity". Regional office for the Pacific in Fiji currently works with the 14 Red Cross societies in the Pacific to carryout effective disaster preparedness, disaster response, health and community care as well as assisting those societies to cooperate regionally.

The **International Committee of the Red Cross (ICRC)** is a separate organisation within the Red Cross Movement. It directs and coordinates the international relief activities conducted by the Red Cross Movement in conflict situation. The HQ of ICRC is in Geneva in Switzerland but a regional office is in Fiji to conduct regional training, education and a voice in relation to the principles of humanitarian law and universal humanitarian principles. In recent conflicts in Papua New Guinea, Fiji and Solomon Islands, ICRC has been active in promoting the safety of non-combatants and of displaced communities.

The Asian Foundation (TAF) in Fiji provides training and technical support for capacity building in the field of disaster management to the Pacific Island Countries through support from USAID. It has a MOU with SOPAC and is co-located within the SOPAC Secretariat for better coordination of activities.

The **Pacific Disaster Centre (PDC)** in Hawaii is managed by the East-West Centre, which is a post-graduate centre on the campus of the University of Hawaii. It provides applied information research and analysis support for the development of more effective policies, institutions, programmes and information products for the disaster management and humanitarian assistance communities of the Asia Pacific Region. PDC has provided hazard-related technical support in a number of regional countries, while the East-West Centre provides regional workshops and training activities on aspects of disaster management.

The **Asian Disaster Preparedness Centre (ADPC)** in Bangkok, although primary meeting Asian needs, provides training and other services of benefit to Pacific island countries. It has a MOU with SOPAC that governs cooperation between the organisations and cooperation of their services.

The **Australian Fire Authorities Council (AFAC)**, which represents all of the Urban and Rural Fire Services in Australia and New Zealand also has a MOU with SOPAC and provides a range of capacity building support to the Fire and Emergency Services in the Cook Islands, Fiji, Papua New Guinea, Tonga, Samoa and Vanuatu. The Fire Services of the region are key community safety organisations that need to be strengthened to ensure that they can play their key role in assisting the process of building safer communities in Pacific island countries.

Emergency Management Australia (EMA) through its partnership with SOPAC is assisting capacity building in the region in the key areas of promoting public awareness, improving national disaster management planning and strengthening emergency coordination and communication. EMA has provided assistance on a national basis to Fiji, Cook Islands, Niue, Tuvalu and Vanuatu and has supported a numberof regional workshops and training programmes.

New Zealand Ministry of Civil Defence and Emergency Management (NZMCDEM) are assisting PICs to review and update their national disaster plans and work closely with SOPACto ensure a coordinated approach to national capacity building in Tonga, Samoa, Niue and the Cook Islands.

Non-Government Organisations (NGOs)

A number of international NGOs work regionally in the Pacific, operating small offices that bring regionally humanitarian and disaster management programmes to the relevant countries. Many of these programmes are designed to develop community disaster reduction and preparedness capacities by bringing the principles of disaster management to a level appropriate to each particular community. These NGOs include: **Caritas, World Vision, Oxfam/Community Aid Abroad, the Adventist Development and Relief Agency (ADRA).**

Other Coordinating Groups

Other coordinating groups include: the **Emergency Management Core Group of the Pacific**; the **Pacific Islands Association of Non-Governmental Organisations (PIANGO)** and the **Foundation of the Peoples of the South Pacific International (FSPI)**. All are committed to community development and poverty alleviation thereby reducing vulnerability to hazards of all types.

Donors

Many of the donors working in the Pacific islands support regional as well as national projects. Some provide the core programme funding that enables regional organisations to perform their tasks. Major donors that continuously support regional capacity building that has an impact on risk and vulnerability to hazards include: the UN agencies such as FAO; UNDP; WHO; UNICEF; OCHA; UNEP; UNESCO; UNIFEM; WMO; UNAIDS; etc. Major bilateral donors include: EU; Japan; China; USA; New Zealand and Australia.

4. National Disaster Organisations in Pacific Island Countries

All except the smallest countries have some form of national management structures. Most have ministers with responsibility for disaster management and national disaster committees that are responsible for developing policy and overseeing disaster management development. With limited financial resources, Government must carefully budget to meet international as well as national social, economic and development needs. The countries are vulnerable to a range of natural and other hazards. Their ability to develop and maintain disaster management capabilities that would enable them to deal with the impacts of these hazards must be viewed in the context of these limitations.

Disaster management in these small island developing countries heavily relies on the few resourceful government officials involved. There is no worldwide model to follow so the countries develop structures that meet their needs and learn from their mistakes. Systems and structures are developed and coordinated through the application of skills from a range of disciplines, agencies and structures, both government and non-government agencies with SOPAC playing a lead role

Continuous development since the 1980s has led to the adoption of broadly similar disaster management structures in many of the island countries of the Pacific. The structures in the Cook Islands, Federated State of Micronesia, Fiji, Guam, Kiribati, Marshal Islands, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu are similar but vary according to local needs. All have a system that is headed by a peak national disaster council or committee supported by a national disaster management office that acts as its secretariat and source of day-to-day coordination and support. Similar committees operate at sub-national levels of government while village or community committees are the mechanism through which the population can connect with and influence the system most effectively. See *Table 4* - Summary of National Disaster Management Arrangements.

4.1 National Disaster Committees

Each of the Pacific Island country has established a peak national committee or council to set policy and oversee disaster management arrangements. The titles of these bodies vary with the country and the culture of the government concened. Typically, a representative of the responsible ministry is appointed to chair the committee and membership consists of senior representatives from key government agencies usually with representatives of the national Red Cross Society and key NGOs. In some countries a small number of ministers sit on the committees while in others the Cabinet or a small Cabinet Committee provides political and policy guidance.

The functions of the committee varies but a typical example is found in Fiji's National Disaster Management Act of 1998, which is among the most recent in the region. In Fiji, the national level committee is called the **National Disaster Management Council (NDMC)**. The functions of the Management Council as stated in the act include:

"The Council shall:

* have overall responsibility for disaster management irrespective of whether there is a disaster or not;
* develop suitable strategies and policies for disaster mitigation and preparedness and for training, management and public education in disaster management;
* prepare and implement adequate rehabilitation programme after disasters;
* recommend policies, strategies and alternatives to Cabinet; and
* form sub-committees to execute specific tasks within their specific fields of competence in addition to those mentioned in Section 7".

Section 7 of this Act requires the creation of an **Emergency Committee**, a **Preparedness Committee** and a **Mitigation and Prevention Committee**, each with relevant responsibilities and each operating in support of the National Disaster Management Council.

The National Committees are required to meet at regular intervals to review disaster management plans and activities but the regularity of these meetings varies from country to country. When a crisis occurs, the committee is expected to coordinate response and recovery activities on behalf of the national government but its operational responsibilities are often delegated to a small group of senior officials of core ministries and other agencies from operational response or recovery agencies. See *Appendix 1*: National Disaster Management Structure in Fiji.

4.2 National Disaster Management Office (NDMO)

National disaster committees are part-time bodies but in almost every Pacific island country, they are supported by a small, full time government national disaster management office

(NDMO). The NDMO normally provides the secretariat and operational support for the national disaster committee and acts as day-to-day national focal point for operational, training and development activities. In Fiji, the NDMO is also referred to as the Disaster Coordinator and is headed by a Director NDMO. The Director is usually the focal point for liaison with international and regional organisations like OCHA, ISDR and SOPAC. In addition, the Director represents the country at the regular Pacific Regional Disaster Managers Meetings convened by SOPAC, at which regular programmes are discussed and initiatives and ideas shared. NDMO staffs are among the best-trained and most experienced disaster managers in their countries and are often full time government officials working in disaster management.

The NDMO's daily activities make a significant contribution to disaster reduction and preparedness. It is generally responsible for coordinating disaster response and preparedness planning, training activities, public awareness and education campaigns, and providing a wide range of advisory functions especially to sub-national committees and local government.

4.3 Sub-national Disaster Management Structures

The disaster management structure below the national level varies with the country. In the larger island countries there are provincial, island or divisional disaster committees, similar in structure to the national committees responsible for activities within their area of administration. These committees consist of senior officials and NGO representatives from the province. They rarely have the resources to appoint full-time support staff but a local government official is often allocated part-time responsibility for disaster management support activities and liaison with the NDMO.

4.4 Disaster Plans

Most Pacific island countries have had some form of national disaster plan for many years. Most of these initial plans are response plans describing the arrangements and responsibilities for responding to natural disasters and providing some guidance on the needs expected after particular disasters. With the assistance of UNDP SPDRP through DHA-SPPO, a number of countries were able to develop more comprehensive national disaster plans covering preparedness, response and recovery activities. Some countries also developed support plans relating to specific hazards. Maintenance of these plans I often adversely influenced by the limited interest from Governments and the shortage of suitable fund and human resources.

4.5 Standing Operating Procedures (SOP)

In recent years, attendance at Emergency Operations Centre Management workshops and also with courses conducted by SOPAC and the Asia Foundation has exposed participants to the value of such procedures. Although procedures did exist in some countries, these were not comprehensive enough and not regularly maintained. This has changed and in the last four years, updated procedures have been developed for the emergency operations centres of a number of countries, including Cook Islands and Fiji.

5. Disaster Reduction

While disaster reduction has continued to be a by-product of development activities, formal coordination of disaster reduction has been developed, led and conducted regionally. Key programmes included the *South Pacific Disaster Reduction Programme (SPDRP)*, conducted by UNDRO's South Pacific Programme Office, the *Comprehensive Hazard and Risk Management (CHARM) Programme* and the *Cities Project* conducted by SOPAC.

All three programmes have helped SIDS in the region to share in developing practices, procedures and activities that are appropriate to the region and to national capabilities and requirements. While there is still a great deal of work needed to be done to extend disaster reduction practice to all levels of society, particularly down to community level, there is clear recognition of the value of disaster reduction practices. At the highest regional level, the Pacific Forum Leaders' Conference in 2003, national leaders endorsed adoption of the CHARM Guidelines by all member countries.

5.1 The **South Pacific Disaster Reduction Programme (SPDRP)** was a programme designed to help Pacific island countries to improve their disaster management within the region. Developed in two phases beginning in 1994 and closed in 2000 when a Disaster Management Unit was established within SOPAC. Its three immediate objectives were:

* to strengthen human resources and institutional capacity to manage the effects of natural disasters effectively;
* to provide appropriate technology support materials for use in disaster management at national, local and community levels and establish a disaster management information system; and
* to achieve an acceptable and sustainable level of regional cooperation and collaboration.

On closure of SPDRP, development materials relating to unachieved objectives were handed over to SOPAC as the new regional coordinator.

5.2 The **Comprehensive Hazard and Risk Management (CHARM)** was developed as a result of a review of Disaster Management Strategies in 1998. The review identified a clear need for a programme to be developed that would support countries in the Pacific in their continuous efforts to enhance community resilience and achieve long-term sustainable development.

CHARM is based on disaster management initiatives and practices already developed in Australia from the Australia/New Zealand Risk Management Standard of 1999 but modified to meet the needs of the Pacific island countries.

CHARM champions an *"all hazards, whole of country comprehensive approach to hazard and risk management"* which requires that programme and processes:

* address all hazards including natural, human-induced, technological, biological and environmental;
* adopt all appropriate risk treatment, including prevention/mitigation, preparedness, response and recovery;
* integrate the efforts of all relevant regional and national organisations and agencies, public sector, NGO's, and community organisations;
* link to national development planning and decision-making processes/systems;
* seek to develop prepared communities with reduced vulnerability to risk and with increased resilience to the impact of hazards; and
* seek to strengthen multi-sectoral collaboration and partnerships.

After a Pilot programme in Kiribati, CHARM Guidelines for the Pacific Island Countries were prepared. These guidelines were endorsed by Forum Leaders as mentioned above. The guidelines described the five main steps that should be followed to implement CHARM and identified the five sequences of actions as:

* **establish the context within which disaster management must be established,**
* **identify the risks**
* **analyse the risks**
* **evaluate the risks,** and
* **treat the risks in the most effective way.**

These five major processes or sequences of actions are consistent with the five main steps of the AUS/NZS 4360: 1999 Standard. See *Appendix 2.- CHARM Processes Overview.*

The CHARM process is underpinned by a continuous requirement for:

* **Communication and Consultation:** It is necessary to include all stakeholders in the process.
* **Monitoring and Review:** It is necessary to ensure that the CHARM process remains valid by conducting regular reviews and monitoring.
* **Effective Documentation:** It is necessary to document all the steps undertaken to demonstrate that the process is conducted correctly and to satisfy audit.
* **Upgrading capability in use of Information Technological and Communication Tools:** All of the above require having good and easily displayable and friendly information system as information collected during these steps will be progressively added to the matrix.

CHARM has been consolidated in four target Pacific island countries namely; Fiji, Tonga, Palau and Vanuatu. For effective implementation strategies include:

* **Training Courses:** SOPAC is collaborating with selected training institutions in the development of training courses in public safety and risk management that incorporate the concepts of CHARM;
* **Training Attachments:** The capacity is yet to be developed and strengthened in both NDMOs and National Planning Offices to drive the process in country. SOPAC has developed partnerships with the Queensland Dept of Emergency Services – Counter Disaster and Rescue Services Division.
* **Information Technological and Communication Strengthening:** A critical success factor to the CHARM programming approach will be to ensure that NDMOs are able to manage multi-disciplinary information resources. SOPAC has already started on this area.

5.3 The **Pacific Cities Project** conducted by SOPAC made a significant contribution to disaster management in the region. Using major cities in Fiji, Papua New Guinea, Samoa, Tonga, Solomon Islands and Vanuatu as a base, Pacific Cities brings together all projects of different origins and funding sources. It relied heavily on the use of GIS as a tool to provide an infrastructure for the management of spatial information. One of the cornerstones of the project has been the *building assets survey*. A database in each city providing an assessment of the potential performance of individual buildings under earthquake, tropical cyclone, flooding or unfavourable foundation condition. The database is linked to the demographic databases of the appropriate city councils and census authorities to asses the risk to the community.

The Pacific Cities project was designed to aid understanding of the hazards facing Pacific island communities in order to asses the elements of risk and their vulnerability to people in particular. The design of the project is such that more emphasis is placed on visual

representations of hazards and risks in a two and three dimensional graphical format rather than with written reports, making use of the power of information technology.

6. Disaster Preparedness in Pacific Island Countries

We cannot control the forces of nature, but we can surely be better prepared to reduce loss of life, injury and property damage.

Why do we have to prepare? There are real benefits to being prepared. Being prepared can reduce fear, anxiety, confusion, and losses that accompany disasters. Communities, families and individuals should know what to do and where to go in the event of a disaster. They should be ready to evacuate their homes and take refuge in nominated shelters and know how to care for their basic medical needs.

The communities and families can reduce the impact of disasters – food proofing, elevating a home or moving a home out of harm's way, and securing items that could shake loose in an earthquake, etc. and sometimes avoid the danger completely.

The need to prepare is real. Disasters disrupt hundreds of lives every year, particularly in the Pacific communities. Each disaster has lasting effects, both to people and property, national economic and environmental consequences. The effects of disasters are felt countrywide. When a disaster occurs in the community, the government of the day and disaster relief organisation such as the Red Cross, will do its very best to reach and help the people affected as soon as possible. But the community needs to be ready as well. Disaster agencies may not be able to reach them immediately for many reasons well known to Pacific island countries, or they may need to focus their efforts elsewhere. Communities should know how to respond to severe weather or any disaster that occur in their areas – hurricanes, flooding, earthquakes, etc. It is also very important that communities should be ready to be self-sufficient for at least three days after a disaster. This may mean providing for their shelter, food, water, first aid, etc.

6.1 Every Member of Community is Involved

Every member of the Pacific island community is part of a national emergency management system that is all about protection and saving lives from all types of hazards. Think of the national emergency management system as a pyramid with the individual, the citizen, forming the base of the structure. At this level, each individual has a responsibility to protect himself/herself by knowing what to do before, during and after an event. This has been the driving message raised by the various Pacific island National Disaster Management Offices and its task forces.

In her opening address of a recent three day Introduction to Disaster Management Course at the Fiji School of Medicine in Suva, the Programme Director, Ms. Kathryn Hawley of the Asian Foundation and SOPAC, said that the need for people to be more aware and responsible during disasters is vital, and community awareness would be important if people were to understand their roles during disaster. The courses, she said, would be incorporated in curriculum modules for the various audiences. Each institution could thus be able to manage disasters from their own disciplines. For the first time, representatives from 22 tertiary institutions participated in such a course to understand the issues of disaster management in Fiji. SOPAC Communication Officer, Ms. Emi Taginaleaibure said that Secondary and Primary schools would also be targeted especially with the upcoming International Day for Disaster Reduction on October 11 in collaboration with National Disaster Awareness Week. She further said that similar training programme would be passed on to regional institutions and communities.

6.2 Issues – Lessons Learned

A ten year review of the implementation of the 1994 Yokohama Strategy and Plan of Action was undertaken by SOPAC Secretariat as part of its regional mandate for disaster management coordination. The review Report was presented to the Second World Conference on Disaster Reduction, which was held in Kobe, Japan in January 2005.

In her presentation of the report, Ms. Cristelle Pratt, the Director of SOPAC included a listing of 'lessons learned' during the past decade by the SIDS as a result of a questionnaire circulated to regional countries and to donors, international agencies and NGOs involved in disaster management and activities. It is worth noting these basic issues raised by the various agencies and including the governments of Pacific island countries with regards to Disaster Management. The issues or lessons learned are sorted and combined by broadly similar content, and they are:

General:

* the first priority in any disaster is human life.
* always be patient. Changes take time and happen slowly. Where there are competing pressures, priorities may differ.
* the commitment and support of politicians and senior officials is a vital element in the development of an effective disaster management system.
* preparedness and emergency planning for all forms of hazards requires a detail knowledge of risk assessment and emergency planning processes.
* attending meetings does not necessarily mean that people are communicating. Communication is a two-way process – to listen as well as speak.
* international developments in communications and other technologies are not always available or supportable in SIDS. SIDS require effective and reliable communication systems and available to all stakeholders – not necessarily the most modern systems.
* the key to effective disaster management is the involvement of all levels of society from top to bottom, the poorest rural dweller. This is critical. If the most vulnerable people are not involved, the system is not working.
* in cultures that rely on oral transfer of history, personal interviews will often provide the most profound source of information.

Programme/Project Management

* facilitating teams that include representatives of government, NGOs and the private sector can guide delivery of programmes far more effectively than a single agency. Local stakeholder support can be fundamental to the success of projects. So, no one single agency can do it alone.
* disasters do not occur in a vacuum but are part of an ongoing process. They must be aware of the work of others and their capabilities.
* emergency managers and disaster management teams must take an holistic approach to the problem in hand.
* sustainable projects contain ongoing support and advice elements after the high profile activities are completed.
* community based projects require constant monitoring and support as most of them are development projects that are related to human behaviour and mind sets.

* in areas of geographical remoteness and isolation, it is vital to allow sufficient time for data collection and to deliver or transfer projects.
* if projects introduce new or unfamiliar concepts and practices, institutional capacities of SIDS may not be sufficiently developed to make use of them. It is important to incorporate pre- and post-action assessment and training elements in the programme.

Data Collection

* when using non-specialists with limited skills or background, data collection will be facilitated and accuracy improved if templates or pro-formas are developed and supported by a standardised dictionary that explains terminology in appropriate non-technical language.
* GIS/GPS data collection is being increasingly used in regional projects. It is important to support this valuable resource with appropriate training for end-users.
* it is important to clearly identify data needs and existing data resources. Inclusion of an Information Gap Analysis component in projects helps to identify gaps in both hazard data and infrastructure.

Training

* preparedness planners and emergency managers are recognised as 'key players' and therefore properly positioned within the organisation and not marginalised.
* disaster management requires professionals who are properly equipped to consider in depth the range of technical, human and logistic problems before, during and after disaster strikes.
* regional training activities need to be coordinated if they are to achieve optimum progressive capacity building across the range of disaster management disciplines.
* any training programme, and particularly a coordinated regional programme, will always benefit from a comprehensive training needs analysis by a neutral provider. Effective analysis for a region requires pilot activities to be conducted in representative countries to refine the process and ensure that appropriate culture factors are taken into consideration.
* the analysis should be followed by a review and planning process in which training recipients and potential providers participate.
* training programmes must include a practical application element if knowledge is to be transferred successfully.
* when training is provided, it is often difficult to ensure that the right people attend. Key people are busy people and may not be in a position to attend or spared. The substitutes they send may not be able to influence change.
* for training to have a lasting effect, regular and ongoing support (personnel and financial) is needed.
* training materials should not be generalised. They need to be designed to meet the needs of the target audience.
* video training materials produced in the country, or even in the region are far more effective than those from other cultures.
* training people from a cross section of society enables greater sharing of experience and improves networking. In turn, this leads to strong awareness and support among organisations, particularly during times of crises.

* training people from a variety of agencies in the same activity helps people to use the same terminology and develop a common approach to problems.
* computer graphics-based simulations can provide a valuable way of visualising events like the impact of a tsunami and assist participants to assess effects.
* negotiating accreditation of technical training activities towards achievement of academic awards is a powerful incentive for individual participation in training programmes.
* regular, preferably annual, evaluation of training programmes makes a vital contribution to the continued effectiveness of training programmes.

Exercises

* exercises are very useful in identifying deficiencies and areas for improvement. They are a useful tool that can assist a country to prioritise its needs for improvements to systems, processes and capabilities.
* in exercises it is valuable to include staff from agencies and ministries that are critical to effective communication and cooperation. They can provide valuable input to syndicate work and can monitor the thinking and progress of participants.
* exercising and training should be kept interesting and cover all probable emergency situations.

Planning and Legislation

* there is a need for effective legislation that clearly identifies authorities and responsibilities.
* planning responsibilities and processes need to be defined and should be inclusive so that those with defined roles feel that they have been adequately consulted and have 'ownership' of the plan.
* the existence of a plan does not mean that everyone involved knows their responsibilities in it, accepts those responsibilities or even knows where there is a copy of the plan. Regular review and updating with participation by all involved helps to ensure understanding and ownership.
* allocating responsibilities to regional or local government without training or support is likely to be ineffective.
* planning for disaster response must cover actions to be taken if people or resources are not available.
* disaster plans must be comprehensive, simple and flexible.
* Plans must be easy to follow.
* decide who will be responsible for various activities when responding to an emergency.
* if the planning process seems overwhelming, approach it in stages.
* even though much has been said about precaution to take when natural disasters hit, little has been done to emphasis the need to review and re-look at building standards and their ability to withstand the impact of natural disasters. The danger particularly lies in these buildings, becoming a contributing factor to the loss of lives.

Community Awareness and Education

* community awareness and education are ongoing activities. One-time messages rarely stick in people's memories.

* community awareness materials must use the media that are available to most of the population – not just those in the capital city.
* communities will only continue to follow valuable traditional practices if they are encouraged to do so and assured of their value.
* inclusion of disaster management material in school curriculum s a valuable investment. It needs to be developed in cooperation with educational authorities and supported with a regular flow of information and up t date resources.

NGOs

* NGOs often have closer links to the community than government agencies and are the most effective channel for broad-based and continuing community education.
* NGOs are particularly effective in providing channels of communication to and from the community. Their close relationships with ordinary people can often be used to identify community concerns and community-based solutions.
* NGOs involved in disaster management activities should develop strategic partnerships with disaster management authorities, relevant ministries and departments, other NGOs and the private sector.

Indigenous Knowledge

* indigenous disaster reduction and management practices have been discounted and eroded over the years yet they often provide the cost-effective way of reducing the impact of disasters in rural areas of developing nations. Unless these practices are recorded and their value recognised and supported they continue to die away leaving communities more dependent on outside support.
* the activities of representatives of developed nations who exploit indigenous knowledge for profit and leave little or no reward have created a culture of distrust in which traditional knowledge-holders are now reluctant to share their knowledge. This culture will continue to be reinforced and the knowledge may eventually be lost unless the world community takes action to prevent such exploitation.

High Level Support

* Disaster Management activities in the region have focussed primarily on developing capacity to prepare for and respond to natural hazards with only limited support from national governments.
* Disaster Management programmes have tended to operate outside of the mainstream government process and therefore levels of community vulnerable have not decreased significantly.
* There is a need for high level advocacy to obtain the highest level of commitment and support for the integration of disaster risk management into national development policy and plans.

6.3 A Framework for Action 2005-2015 – SOPAC

There is ongoing and increasing vulnerability of Pacific Island nations and communities to the impacts of disasters. This has led to increase national and regional commitments to disaster risk reduction and disaster management on 'all hazards' basis in support of sustainable development.

In line with these commitments and the resolutions from the Pacific Forum Leaders meeting in Madang in 1995 and the Auckland Declaration in 2004, SOPAC had developed **'A Framework for Action 2005 – 2015'** which was agreed to by officials who attended the

12th Pacific Regional Disaster Management Meeting of 6 – 8 June 2005 and endorsed by the Leaders at the Thirty-Sixth Pacific Islands Forum on 25 – 27 October, 2005.

At the regional level, the framework looks at the strengthening of a coordinated approach to 'all hazards' across the region that would significantly improve the capacity of individual Pacific island countries and communities, thus reducing their vulnerabilities and effectively manage disasters when they occur.

At the national level, the framework highlighted the need to develop an integrated approach involving the whole government to disaster risk reduction and disaster management with key agencies coordinating closely with all stakeholders – local, national and international. In addition, the framework encouraged the strengthening of national legislation and regulation frameworks. Furthermore, at the national level, models of best practice will need to be developed and adopted to support disaster risk reduction in development planning and promote capacity building in disaster management.

At the local level, the framework highlighted the continuous necessity of partnerships between government, community groups and civil society to engage, support and enhance the existing capacity within Pacific island communities.

The framework guiding principles address the specific gaps and challenges identified by Pacific island communities, the various Reports by SOPAC and Conference Papers which require actions on these gaps at all levels; nationally, regionally and internationally, with priority given to national and local actions to support community-based needs and initiatives. These six guiding principles or themes of the framework include:

i. Governance – Organisational, Institutional, Policy and Decision-making Frameworks.

National governments have the key responsibility for disaster risk reduction and disaster management policy development and planning, ensuring they reflect the principles of good governance, and security within the context of sustainable development.

ii. Knowledge, Information, Public Awareness and Education.

Capacity building for disaster reduction and disaster management is facilitated by information gathering, storage and dissemination leading to knowledge acquisition and management, education, training and professional development programmes, and information management systems and technologies which underpin the successful implementation of policies and plans.

iii. Analysis and Evaluation of Hazards, Vulnerabilities and Elements at Risk.

Developing a better understanding of hazards, together with analysis and evaluation of vulnerabilities and risks, enables people to be well informed and motivated towards a culture of prevention and resilience.

iv. Planning for Effective Preparedness, Response and Recovery.

While all hazards cannot be eliminated, or some even substantially mitigated, improving disaster preparedness, response and recovery can significantly reduce their devastating impacts on vulnerable communities.

v. Effective, Integrated and People-Focused Early Warning System.

Warnings must be timely and understandable to those at risk, take into account the demographic, gender, cultural and livelihood characteristics of target audiences, and support effective operations by decision makers.

vi. Reduction of Underlying Risk Factors.

Risk factors relating to changing social, economic and environmental conditions need to be addressed in national sustainable development strategies, as well as sectoral development policies, plans and programmes in order to provide a broader basis of effective risk reduction and disaster management.

The Table below identify each of the Themes with a listing of expected outcomes by 2015. Suggested key national and regional activities directed towards the achievements of the expected outcomes are also identified.

Table Showing Guiding Principles Addressing Gaps & Challenges as Contained in: *'A Framework for Action 2005 – 2015'*

Theme Title	Theme Description	Expected Outcomes by 2015	Key National Activities	Key Regional Activities
1. Governance – Organisational, Institutional, Policy and Decision-making Framework	National government has the primary role in disaster risk reduction and disaster management. However, it is a shared responsibility requiring effective partnership between all levels of government and other stakeholders. The application of good governance principles are also essential to ensure timely and cost effective outcomes. The adoption of a holistic and integrated 'whole of country' approach and the integration of disaster risk reduction and disaster management considerations into national policies, planning processes and decision-making at all levels and across all sectors is critical. The establishment and/or strengthening of existing decision-making processes and organizational arrangements will ensure timely and effective disaster risk reduction and disaster management outcomes.	a). Disaster risk reduction and disaster management mainstreamed into national policies, planning processes, plans and decision-making at all levels and across all sectors. b). Partnerships and organizational arrangements with and between government agencies, civil society, development partners, communities and other stakeholders strengthened. c). CROP agency partnerships coordinated, harmonized and strengthened to ensure country and outcome-focused delivery of services. d). Good governance by all stakeholders in disaster risk reduction and disaster management at regional, national and local levels strengthened.	a). Integrate the management of economic, social and environment risks into national planning and budgetary processes. b). Include disaster risk assessment in development and investment decision-making right down to the community level. c). Identify, assess and implement regulatory and incentive based instruments for disaster risk reduction and disaster management. d). Strengthen whole of government and stakeholder collaboration in disaster risk reduction and disaster management, identifying lead agencies, roles, and responsibilities. e). Coordinate and harmonise development partner assistance to ensure effective use of resources.	a). Develop new and strengthen existing guidelines, tools and training programs to assist national governments to mainstream disaster risk reduction and disaster management. b). Strengthen decision making through the use of information systems on hazards and their impacts. c). Develop guidelines for appropriate indicators for monitoring and evaluating disaster risk reduction and disaster management activities at regional, national and local levels. d). Strengthen CROP collaboration and partnerships, adopting an integrated and programmatic approach to support disaster risk reduction and disaster management at the nation level.
2. Knowledge, Information, Public Awareness and Education	Information management is a vital element of disaster risk reduction and disaster management necessary for retaining and/or strengthening, cultural, traditional and contemporary knowledge. Use of information systems will increase the effectiveness of disaster risk reduction and disaster management at national and	a). Better informed and more resilient communities as a result of quality public awareness and education programmes. b). Sustainable, user-friendly information management networks in use at national and regional levels. c). Improved knowledge of social, economic and environmental	a). Strengthen training programmes to enhance professional development in disaster risk reduction and disaster management amongst all stakeholders. b). Expand and focus public awareness and education programmes to enhance community resilience through	a). Coordinate, develop and promote the process of accreditation for existing and future disaster risk reduction and disaster management training programmes. b). Promote and support the integration of disaster risk reduction and disaster management education and

Theme Title	Theme Description	Expected Outcomes by 2015	Key National Activities	Key Regional Activities
	community levels. Public awareness and education, incorporating tradition coping mechanisms and local knowledge, will enhance individual and community resilience. Formal disaster risk reduction and disaster management training, institutionalized through national and regional educational programmes, will improve professional capabilities.	impacts of disasters in Pacific island nations and communities to monitor the effectiveness of disaster risk reduction and disaster management measures. d). Disaster risk reduction and disaster management training programmes institutionalized at national and regional levels. e). Accredited and recognized qualifications in disaster risk reduction and disaster management.	community-driven approaches, initiatives and information sharing. c). Strengthen collaboration among government and non-government agencies to more effectively underpin information management, public awareness and education. d). Develop strategic and, long-term approaches to the design, implementation and evaluation of public awareness, education and training programmes. e). Develop resources for, and delivery of, media-based public awareness and education programmes. f). Affirm, record and protect traditional coping mechanisms g). Integrate traditional knowledge into information management systems. h). Integrate disaster risk reduction and disaster management training where appropriate into formal education programmes. i). Strengthen national capacities conduction comprehensive disaster impact assessments, and cost benefit analysis of disaster risk reduction and disaster management measures. j). Establish an integrated national information system for collection and management of comprehensive data and information, for disaster risk reduction and disaster management.	training into the formal education sectors (i.e. schools/universities/technical institutions etc.) c). Support and where appropriate, coordinate and conduct regional or national training activities. d). Provide guidance for the design and development of appropriate public awareness and education materials and resources. e). Support countries to establish integrated national information systems for the collection and management of comprehensive data and information for di9saster risk reduction and disaster management. f). Provide national disaster risk reduction and disaster management organizations access to common information systems with links to other related central websites. g). Support for countries to develop capacity to conduct comprehensive disaster impact assessments and cost benefit analysis of disaster risk reduction and disaster management measures. h). Continue development of trainers and training management systems through the strengthening of the regional training advisory group (RTAG).

Theme Title	Theme Description	Expected Outcomes by 2015	Key National Activities	Key Regional Activities
3. Analysis and Evaluation of Hazards, Vulnerabilities and Elements at Risk	The starting point for reducing disaster risks, planning for disaster management and promoting a culture of resilience, lies in a greater level of understanding of the cause and effects of hazards and the physical, social, economic and environmental vulnerabilities to disasters that Pacific island nations and communities face. The effects of hazards can be reduced when people are well informed and motivated to take action towards a culture of prevention and resilience and in addition identify disaster risk reduction priorities, which in turn requires the compilation, analysis and dissemination of relevant information and knowledge on hazards and their impacts. Strengthened networks and partnerships will facilitate better integration of available resources, including local expertise.	a). An integrated framework for disaster risk reduction planning developed and implemented in Pacific island nations and communities. b). Estimates of disaster risk and vulnerability that will enable informed decisions regarding the impact of disasters on physical infrastructure, social economic and environmental conditions in Pacific island nations and communities. c). Data and statistical information on disaster occurrence and impacts available for the region. d). Implementation of a comprehensive scientific and technical regional database enabling spatial analysis of hazard prone areas, and establishment of magnitude frequency relationships and loss functions.	a). Adopt and apply the Comprehensive Hazard and Risk Management (CHARM) process to assist decision making in disaster risk reduction and disaster management planning. b). Conduct hazard and vulnerability assessments and mapping at all levels, which will include the collection of required baseline data. c). Promote and apply community-based disaster risk assessment tools and best practices. d). Collect and analyze comprehensive data on the direct and indirect impacts of disasters on development in both the short and long-term. e). Develop strategies to increase the engagement of communities and incorporate traditional knowledge in disaster risk reduction and disaster management processes. f). Strengthen capacity at all levels to utilize risk assessment products and tools to enhance disaster risk reduction and disaster management, such as the Environmental Vulnerability Index (EVI) as a monitoring tool. g). Strengthen networks, in particular at the national level, for more effective hazard and risk assessment including data sharing.	a). Develop and/or improve and promote the application of tools and methodologies for assessing hazards and vulnerabilities. b). Research and compile statistical information and data on disaster risks and impacts including time series and cross-sectoral data at national and regional level. c). Strengthen technical and scientific capacity and resources to enhance data collection, collation, analysis, synthesis, dissemination, maintenance, data sharing, protocols and E-networking. d). Strengthen post disaster hazard assessment and technical assistance programmes.

Theme Title	Theme Description	Expected Outcomes by 2015	Key National Activities	Key Regional Activities
4. Planning for Effective Preparedness, Response and Recovery	While we cannot avoid hazards there is considerable scope for reducing their devastating impacts on vulnerable communities by improving disaster management arrangements for preparedness, response and recovery activities. Disaster management planning is a continuous process. A disaster management plan does not provide all the answers to managing a disaster – it provides a framework for the coordination of the most effective methods and relationships for dealing with its impact. Funds and resources for disaster management in the Pacific are limited. Nations should strive to achieve models for disaster management that are both effective and sustainable, and include regional cooperation.	a). Disaster preparedness, and the capacity for effective and timely response and recovery, strengthened in all Pacific island nations and communities b). Funds and resources made available to achieve an effective model of disaster management c). Emergency communication systems established and operating effectively d). Public awareness programmes addressing all known hazards e). Emergency responses organizations and systems strengthened, including at the regional level.	a). Review and strengthen disaster management planning arrangements ensuring clearly defined roles and responsibilities, and an integrated approach involving all stakeholders. b). Ensure that the disaster management organizational structure includes an adequately resourced national disaster management office and functional emergency operations center(s) (EOC) and other infrastructure c). Develop and implement a disaster management training programme including community based disaster risk management d). Determine, establish and maintain effective and sustainable emergency communications systems e). Strengthen emergency preparedness and response agencies. f). Establish a national disaster fund for response and recovery g). Establish a contingency stockpile of emergency relief items h). Adapt regional guidelines and models of best practice for national implementation.	a). Support the strengthening of disaster management capacities and planning arrangements at national level. b). Support the development and implementation of community-based disaster risk management programmes. c). Develop guidelines including models of best practice for effective disaster management and provide them to all Pacific island nations and communities. d).Support the development and/or strengthening of appropriate regional mechanisms in conjunction with key stakeholders, to respond to humanitarian needs at the request of Pacific island nations. e). Assist countries in the development of their emergency communications systems.
5. Effective, Integrate and People-Focused Early Warning Systems	Effective measures for disaster preparedness should include well-functioning early warning systems that deliver accurate and understandable information in a timely manner. The region has recognized the	a). Robust, effective national and regional monitoring and early warning systems established and strengthened for all hazards incorporating traditional knowledge and appropriate technology and tools. b). Community, national and	a). Establish and/or strengthen institutional capacities to ensure early warning systems are integrated into governmental policies, decision-making processes and emergency management systems at both national and community levels.	a). Complete inventories and needs analyses of regional early warning systems and identify priorities for improved regional early warning systems that will better support national needs. b). Support the provision of regional forecasting, and early

Theme Title	Theme Description	Expected Outcomes by 2015	Key National Activities	Key Regional Activities
	need to strengthen its early warning systems that respond to specific and urgent needs and the circumstances in Pacific island nations and communities. This includes the need to communicate over vast ocean distances both within and between countries, and of the generally isolated populations. The early warning systems need to be based on: i. prior knowledge of the specific hazards and risks faced by the communities, ii. sound scientific and technical monitoring and sustainable warning services for these hazards and risks, iii. dissemination of timely and understandable warnings, iv. local knowledge and preparedness to act. These systems need to be integrated into the global network supporting early warning, and vice-versa, but must be tailored so that information remains "community-focused" and addresses all hazards. In considering early warning systems, nations should strive to establish sustainable and effective 'all hazards' warning systems.	regional warning systems integrated into the global network supporting early warning and vice-versa to improve safety and security to disasters. c). Effective communication and awareness raising in place as part of these community-focused early warning systems.	b). Complete inventories and needs analyses of national early warning systems ensuring inputs from all stakeholders, including traditional knowledge and community needs are addressed. c). Upgrade or redesign existing national forecasting or early warning systems to cater for major hazards. d). Develop and implement a comprehensive programme for community awareness and preparedness.	warning and monitoring systems of hazards such as tropical cyclones, droughts, flooding, storm surges, tsunamis, earthquakes and volcanic activity. c). Integrate national and regional early warning systems into the global networks and vice-versa.

Theme Title	Theme Description	Expected Outcomes by 2015	Key National Activities	Key Regional Activities
6. Reducing Underlying Risk Factors	Underlying risks created by changing social, economic, environmental conditions and resource use, and the impact of hazards, including those associated with climate variability, climate change and extreme weather events, must be addressed in national and sectoral adaptation planning and programmes. Food preservation and security is an important factor in ensuring the resilience of communities to disasters, particularly in areas prone to drought, flooding and other hazards that can weaken livelihoods. However, the limited physical infrastructure, housing and capacity for many small island states to preserve and secure food stocks needs to be addressed. Critical public infrastructure and housing should be strengthened through proper risk assessment, codes of practice and design standards.	a). Active steps are taken to address underlying risk factors such as poverty and population trends that negatively impact on community resilience. b). Adoption of risk assessment, codes of practice and design standards by key sectors such as private sector, health, transport, communication, construction, and agriculture for improving their resilience. c). Disaster risk reduction measures for major infrastructure, industries and projects are covered by planning processes. d). Resource-use policies and practices incorporate risk reduction measures.	a). Ensure the participation by all stakeholders: government agencies, private sector and communities in adopting and applying risk reduction tools and the sharing of risk reduction information. b). Support and enhance the capacity of social and planning systems to ensure vulnerable populations are less exposed to disaster risks and disaster impacts. c). Promote risk sensitive resource use policies and practices and ensure compliance. d). Implement appropriate building codes and monitor compliance by responsible national administrative bodies and reporting. e). Develop financial risk- sharing mechanisms, particularly insurance, reinsurance and other financial modalities against disasters. f). Promote food security as an important factor in ensuring the resilience of communities to disasters.	a). Provide scientific support and information on hazards and risks to enable the effective application of appropriate disaster risk reduction tools. b). Strengthen information sharing mechanisms on disaster risk reduction. c). Support the development of guidelines for hazard resistant buildings including appropriate technology where applicable. d). Support the incorporation of disaster risk reduction measures in key areas such as land-use policy, development and practice, and physical infrastructure. e). Support the development of financial disaster risk-sharing mechanisms, particularly insurance, reinsurance and other financial modalities for risk transfer.

6.4 Implementation and Follow-up

The successful implementation of this Framework for Action is dependent on the ownership and combined efforts of governments and all other stakeholders working in partnership to ensure a multi-disciplinary, multi-sectoral, integrated approach at regional, national and community levels.

National

Successful implementation of this framework is dependent on:

a). national governments adapting and owning this Framework through the mainstreaming of disaster risk reduction and disaster management practices into policies and programmes, and

b). an effective mechanism to coordinate, through a participatory process, the development, implementation, monitoring and reporting of a national action plan.

Regional

Subject to the SOPAC Secretariat seeking its Governing Council approval to this Framework, SOPAC, which has the mandate for the coordination of regional disaster risk reduction and disaster management, will:

a). actively promote the approved Framework and seek the collaboration of key CROP agencies and other regional partners in its implementation;

b). ensure work plan priorities are aligned to the Framework, and develop an implementation plan including a process for monitoring and evaluation;

c). support member countries to develop and implement their national action plans;

d). coordinate the reporting on regional progress in implementing the Framework;

e). advocate for resources to support the successful implementation of the Framework, and

f). coordinate a process of review and reporting on the implementation of the Framework.

International

International organizations are encouraged to support the implementation of this Framework and the achievement of national priorities through closer collaboration and partnerships at regional, national and community levels.

Resource Mobilisation

National governments to allocate resources to support the implementation of identified strategic priorities.

Regional, international organizations and other development partners, through appropriate multilateral, regional and bilateral coordination mechanisms, to provide resources to support the implementation, incorporating principles of good donorship.

Partnerships to be developed to implement schemes that spread out risks, reduce insurance premiums, expand insurance coverage and thereby increase financing for post-disaster reconstruction and rehabilitation, including through public and private partnerships as appropriate. Promote an environment that encourages a culture of insurance in developing countries, as appropriate.

7. Conclusion

Past experiences and record on the impact of natural disasters in the Pacific region show that our very narrow based island economy is disrupted very badly during disaster events. As examples,

Fiji is subject to an average of around 10 – 15 tropical cyclones per decade, of which at least two are major cyclones. In Western Samoa, the damage caused by Cyclone Vai in 1991 was assessed at a cost equal to more than twice the gross domestic product.

However, it is encouraging to note that Pacific island leaders with strong support from Regional organisations have taken appropriate initiatives in the development and implementation of a regional strategy for disaster management and related activities. We have seen institutional strengthening and establishment of NDMOs and the focus on improving disaster preparedness and the concerted effort to ensuring effective coordination of responses during disasters and emergencies.

There are still a lot to be done. Strategies and plans have been developed and endorsed by Pacific island leaders. These Strategies and plans show that hazards and risks facing PIC can be managed, and the effective management of these risks will underpin greater sustainability in development planning, strengthen disaster response capacity and reduce severity of disasters.

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MAP 1 **- South-West Pacific Region**

Table 1 - Summary of Key Statistics Relating to Regional Countries

Country	Inhabited Islands	Land Area Sq km	EEZ [Million Sq km]	Elevation Metres	Population	Pop Density (Pop/sq km)	Pop Growth Rate (%)	Urban Pop 1999 (%)	Urban Pop Growth (%)	Languages	Estimated Per Capita GDP US$
American Samoa	7	197	0.39	966	70,260 (2003)	357	2.22	33	Not avb	2	8,000 (2000)
Australia	NA	7,682,300	15.00	2,228	19.9 million (2003)	3	1.2	92	1.8	1	25,370 (2001)
Cook Islands	15	237	1.83	652	21,008 (2003)	62	5.8	59	0.6	2	5,000 (2001)
Federated States of Micronesia	607 (65)	701	2.98	791	118,500 (2000)	169	1.9	27	0.4	4	2,070 (1998)
Fiji	320 (150)	18,333	1.26	1,324	868,531 (2003)	44	1.0	71	2.6	3	4,850 (2001)
French Polynesia	59	3,521	5.03	2,241	262,125 (2003)	66	1.6	53	1.4	2	5,000 (2001)
Guam	1	541	0.21	406	154,800 (2000)	286	1.9			3	15,541 (1995 estimate)
Kiribati	33 (20)	811	3.55	87	98,549 (2003)	110	2.2	37	2.2	2	800 (2001)
Marshall Islands	29	181	2.13	3	56,429 (2003)	285	1.6	65	1.8	2	1,600 (2001)
Nauru	1	21	0.32	70	12,570 (2003)	599	2.5	0	0	2	3,450 (1998)
New Caledonia	7	18,576	1.74	1,628	210,798 (2003)	11	1.71	71	2.7	32	14,000 (2002)
New Zealand	NA	268,680	1.3	3,754	3.8 million (2001)	14	0.6	86	1.2	2	20,100 (2002)
Niue	1	259	0.39	65	2,145 (2003)	7	3.1	35	1.2	2	3,600 (2003)
Palau	200	458	0.63	242	19,717 (2003)	43	1.0	69	1.2	6	9,000 (2001)
Papua New Guinea	NA	462,243	3.12	4,697	5,295,816 (2003)	10	2.2	15	4.1	700	2,100 (2002)
Pitcairn	1	5	0.8	347	47 (2003)	9	0	0	0	2	Not available
Samoa	9	2,935	0.12	1,860	178,173 (2003)	61	1.1	21	1.2	2	6,180 (2001)
Solomon Islands	347	28,370	0.60	2,447	509,190 (2003)	16	2.6	13	6.2	89	1,910 (2001)
Tokelau	3	12	0.29	5	1,500 (1995)	125	0	0	0	2	1,000 (1993)
Tonga	171 (136)	649	0.70	1,030	100,300 (2000)	155	0.5	32	0.8	2	1,868 (1998)
Tuvalu	9	26	1.30	5	11,305 (2003)	404	1.9	42	4.8	2	1,100 (2000)
Vanuatu	84	12,190	0.71	1,877	199,414 (2003)	16	2.2	21	4.3	108	2,900 (2002)
Wallis and Futuna	23	274	0.3	765	15,734 (2003)	57		Not appl	Not Appl	2	2,000 (2000)

Table 2 - Disasters in the Pacific Islands Region: 2000 - 2005

Year	Location	Disaster Type	Population Affected	Lives Lost	Estimated Cost	Notes
2000	Papua New Guinea: Pangia, S Highlands	Thunderstorms	400+	1		Houses and gardens destroyed
	Papua New Guinea: Laloki, Central	Floods	1,000	`		Food gardens destroyed
	Papua New Guinea: Bougainvillie & Buka, N Solomons	Tsunami & Flood	1,600			Houses and food gardens destroyed
	Papua New Guinea: E New Britain	Earthquake	100,000		Kina 14 million	Infrastructure and property damage
	Papua New Guinea: W New Britain	Volcanic Ash Fall	3,750			House and crop destruction
	Papua New Guinea: S Highlands	Floods	16,000			Destruction of Infrastructure
	Papua New Guinea: Bereina, Central	Floods	500+			
	Papua New Guinea: Morobe	Landslide	5	2		
	Papua New Guinea: Long I, Madang	Flood	1,900			
	Fiji	Coup and subsequent mutiny				
	Tonga	Tropical Cyclone Mona	65,000		T$4.2 million	Agriculture damage
	Vanuatu	Tropical Cyclone Iris				Housing and Agriculture damage
	Fiji	Floods	5,000	4		Minor damage
	Australia	Floods	60,700			New South Wales, Northern Territory, Queensland, South Australia, Victoria and Western Australia. 10 events.
2001	Papua New Guinea: Mumeng, Morobe	Floods	400			Infrastructure destroyed
	Papua New Guinea: Madang Town	Explosion (Contaminated kerosene)	60+	5		
	Vanuatu	Tropical Cyclone Paula		1		Housing and Agriculture damage
	Fiji	Tropical Cyclone Paula Storm Surge	7,000	1		Housing damage
	Tonga	Tropical Cyclone Paula	20,000		T$700,000	Tourist resort damage
	Vanuatu	Volcanic eruption	1,700+			Water Supply contamination, respiratory problems, crop damage
	Samoa	Floods	5,000 directly, 28,000 indirectly		SAT 11 million	Houses, commercial buildings flooded and damaged. Lifelines (roads, bridges, water supply, hydro power stations damaged and supplies interrupted.
	Palau	Tropical cyclone Utor	11,000		US$ 4 million	Homes destroyed, communications, transportation and utilities systems disrupted

Year	Location	Disaster Type	Population Affected	Lives Lost	Estimated Cost	Notes
	Tonga -	Tropical Cyclone Waka	68,000		T$104 million	470 houses destroyed. Food supplies, power system health and sanitation damage.
	Tuvalu	Boarding School Fire	36	18	AU$ 500,000	Affected almost every family in the country
	Guam	Earthquake				
	Australia	Floods	214,500+	1		New South Wales, Queensland, Tasmania, Victoria and Western Australia. 6 events
2002	Papua New Guinea: Wewak, East Sepik	Earthquake	5,000	4		Building damage
	Papua New Guinea: Mt. Pago, W New Britian	Volcano	13,000			Lifelines disrupted, Major bridge destroyed by mudflow, Homes affected by flooding. Major evacuations affected agriculture.
	Papua New Guinea: Ramu R, Madang	Floods				Houses Affected
	Papua New Guinea: Wantuat, Morobe	Earthquake & Landslide	138	36		Village Destroyed
	Papua New Guinea: Milne Bay	Mild El Nino drought	35,000			Reduced food security.
	Vanuatu	Hailstorm	3,000		Vt 800 milliom	500 houses destroyed, Agricultural, infrastructure and water supply damage
	Federated States of Micronesia	Tropical Cyclone Mitag	8,000			Damage to housing and agriculture
	Guam	Tropical Cyclone Pongsona				
	Federated States of Micronesia	Tropical Cyclone Chata'an	1,000	47		Damage to housing and crops, Many landslides
	Guam	Tropical Cyclone Chata'an	1,600		US$60 million	Damage to housing, agriculture and utilities.
	Vanuatu	Earthquake	1,100			Housing, schools and churches damaged
	Tuvalu	Tidal Surge	50		AU$20,000	Flooded all low-lying areas.
	Australia	Floods	47,000	1		New South Wales
2003	Papua New Guinea: Sepik R, E Sepik	Floods	4,365			
	Tuvalu	Tropical Cyclone Ami	27		AU$6,000	Coastal damage
	Solomon Islands: Renell & Bellona	Tropical Cyclone Beni	2,010			Housing and agriculture damage
	Fiji	Tropical Cyclone Ami	60,000	15	US$22.8 million	Housing, infrastructure and agriculture damage
	New Caledonia	Tropical Cyclone Erica	1,000+			Housing and agriculture damage

Year	Location	Disaster Type	Population Affected	Lives Lost	Estimated Cost	Notes
	Solomon Islands: Tikopia and Anuta	Tropical Cyclone Zoe	1,678			Housing, schools, clinics and agriculture damaged. Water Supplies affected
	Tonga	Tropical Cyclone Eseta	15,000		T$1.9 million	Housing, harbour facilities and resort damage.
	Papua New Guinea: S. Highlands	Landslide	13			Housing and crop damage
	Papua New Guinea: Bukawa, Marobe	Floods	1,197			
	Papua New Guinea: Madang Town	Internally displaced	13,000			
	Federated States of Micronesia	Tropical Cyclone Lupit	2,000			Damage to housing, water supplies and crops
	Australia	Bushfires		4		ACT, NSW, Victoria
	American Samoa	Floods and Landslides				
	Australia	Floods		9		Queensland and South Australia. 5 events
2004	Papua New Guinea; Simbu	Landslides				Highlands Highway – the main transport link – disrupted. Cash crop movement stopped
	Papua New Guinea: Pamu R. Madang Markham R, Morobe	Floods				Major bridges destroyed or damaged. Cash economy disrupted.
	Tuvalu	Fire	16		AU$6,000	
	American Samoa	Tropical Cyclone Heta				
	Samoa	Tropical Cyclone Heta	Total		SAT 90 million (US$ 35 million)	50+ houses destroyed, Wind damage to houses, crops, utilities, and coastal ecosystems. Wave damage to roads, culverts and seawalls as well as depositing debris across roads and in coastal villages.
	Niue	Tropical Cyclone Heta	1,300	1	US$23 million	Whole Country affe cted. Damage to housing, hospital, commercial buildings, crops, and utilities, transport system.
	Wallis & Futuna	Tropical Cyclone Heta				Damage to power supplies and agriculture
	New Zealand	Floods			NZ$180 million	Housing, transport systems, Utilities and agriculture affected.
	Tonga	Tropical Cyclone Heta	1,200		T$ 950,000	Housing and agricultural sector damage.
	Fiji	Storms and Floods	36,500	23	FJ$3 million	
	Vanuatu	Tropical Cyclone Ivy	54,000	2	Vt 900 million	Housing, agriculture, schools, healt h facilities and water supply system

Year	Location	Disaster Type	Population Affected	Lives Lost	Estimated Cost	Notes
						damage
	Federated States of Micronesia	Tropical Cyclone Sudal	12,000			Damage to housing, public and commercial buildings, crops, and utilities.
2005	Vanuatu	Tropical Cyclone Kerry				
	Fiji - Southern Lau Group	Tropical Cyclone Lola				
	Southern Tonga	Tropical Cyclone Lola				
	Southern Cook Islands	Tropical Cyclone Meena				
	Southern Cook Islands	Tropical Cyclone Nancy				
	Samoa	Tropical Cyclone Olaf				
	Southern Cook Islands	Tropical Cyclone Olaf				
	Wallis & Futuna	Tropical Cyclone Percy				
	Tokelau Islands	Tropical Cyclone Percy				
	Cook Islands	Tropical Cyclone Percy				
	Samoa	Tropical Cyclone Rae				
	Cook Islands	Tropical Cyclone Rae				
	Niue	Tropical Cyclone Sheila				
	Southern Cook Islands	Tropical Cyclone Sheila.				

Table 3 - Pacific Island Countries Estimated Level of Vulnerability To Specific Natural Hazards

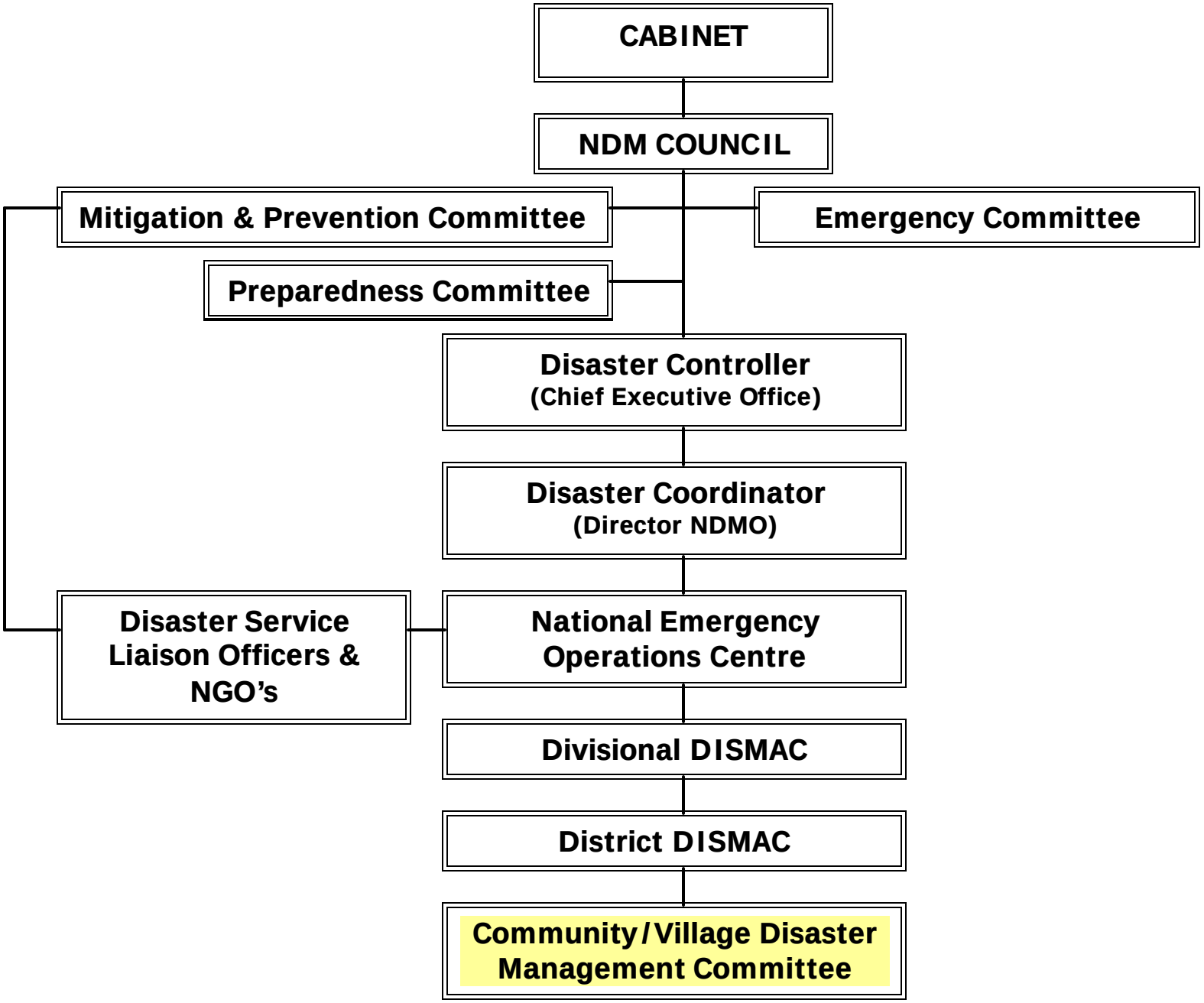
('Final Report for International Decade For Natural Disaster Reduction' – Dr. Jack Rynn)

Country	Population	Land Area (km2)	Tropical Cyclone	Storm Surge	Coastal Flood	River Flood	Drought	Earthquake	Landslide	Tsunami	Volcanic Eruption
Cook Islands	21,008	237	H	H	M	M	H	L	L	M	-
Federated State of Micronesia	118,500	701	M	M	H	-	H	L	L	N	-
Fiji	868,531	18,333	H	H	H	H	H	H	H	H	L
Kiribati	98,549	811	L	M	H	-	H	L	L	H	-
Marshall Islands	56,429	181	H	H	H	-	H	L	L	H	-
Nauru	12,570	21	L	L	L	-	H	L	L	L	-
Niue	2,145	259	H	H	L	-	H	M	L	M	-
Palau	19,717	458	H	H	M	-	H	L	L	M	-
Papua New Guinea	5,295,816	462,243	H	H	H	H	H	H	H	H	H
Samoa	178,173	2,935	H	H	H	H	L	M	H	H	M
Solomon Islands	509,190	28,370	H	H	H	H	H	H	H	H	H
Tokelau	1,500	12	H	H	H	-	H	L	L	H	-
Tonga	100,300	649	H	H	H	M	H	H	L	H	H
Tuvalu	11,305	26	H	M	H	-	M	L	L	H	-
Vanuatu	199,414	12,190	H	H	H	H	H	H	H	H	H

Table 4 - Summary Of National Disaster Management Arrangements

Country	National Disaster Council	National Disaster Management Office	Specific Disaster Legislation	National Disaster Response Plan	Comprehensive National Disaster Plan	Sub National Disaster Plans	Village Disaster Plans	Standard Operating Procedures
American Samoa								
Australia	Yes	Yes	Yes	Yes	Not Required	Yes	Yes	Yes
Cook Islands	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Federated States of Micronesia	Yes	Yes					No	
Fiji	Yes	Yes	Yes 1998	Yes 1995	Yes 1995	Yes	Not Required	Yes
French Polynesian								
Guam	Yes	Yes						
Kiribati	Yes	Yes	Yes	Yes	Yes	No	No	Police Only
Marshall Islands	Yes	Yes						
Nauru	No	No	No	No	No	No	No	No
New Caledonia								
Niue	Yes	Yes	Yes	Yes	Yes	Not Required	Yes	Yes
Palau	Yes	Yes	No	Yes 1999	No	Yes	No	No
Papua New Guinea	Yes	Yes	Yes	Yes	No	No	No	Yes
Samoa	Yes	Yes	Yes	Yes 1997	No	No	No	Yes
Solomon Islands	Yes	Yes	Yes 1989	Yes 1987	No	No	No	No
Tokelau		No	No	No	No	Not Required	No	No
Tonga	Yes	Yes	No	Yes 1999	Yes 1999	Not Required	Not Required	Some
Tuvalu	Yes	Yes	No	Yes 1987	Partial	Not Required	Not required	N
Vanuatu	Yes	Yes	Yes	Yes 2000	Yes 2000	Not Required	Not Required	N

NATIONAL DISASTER MANAGEMENT STRUCTURE



Appendix 2

CHARM Process Overview