FIJI

EMERGENCY PREPAREDNESS

OPERATIONAL LOGISTICS CONTINGENCY PLAN

PART 1 – RISK PROFILE & DISASTER MANAGEMENT

GLOBAL LOGISTICS CLUSTER — WFP
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A. SUMMARY

B. CONTEXT

INTRODUCTION 5
BACKGROUND INFORMATION 6
REVIEWS OF THE DISASTER MANAGEMENT FRAMEWORK 6

C. TYPES OF HAZARDS IN FIJI

DEFINITION 7
TYPES OF DISASTERS 7
CLASSIFICATION OF DISASTERS 8
DISASTER PROBABILITY 8
FIJI RISK PROFILE 8

D. TYPOLOGY OF HAZARDS

CYCLONES 9
CHARACTERISTICS TROPICAL CYCLONES 11
FLOODS 12
CHARACTERISTICS OF FLOODS 13
EARTHQUAKES 14
SOURCE: AIR WORLDWIDE CORPORATION – WORLD BANK 16
CHARACTERISTICS OF EARTHQUAKES 16
TSUNAMIS 17
CHARACTERISTICS OF TSUNAMIS 19
LANDSLIDE/LAND MOVEMENT 20
CHARACTERISTICS OF LANDSLIDES 21
DROUGHTS 22
CHARACTERISTICS OF DROUGHTS 22

E. FIJI DISASTERS RISK PROFILE 24

F. DISASTER RISK MANAGEMENT FRAMEWORK 28

MULTINATIONAL CONVENTIONS 28
NATURAL DISASTER MANAGEMENT ACT OF 1998 29
NATIONAL DISASTER MANAGEMENT COUNCIL 29
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Disaster Controller</td>
<td>29</td>
</tr>
<tr>
<td>National Disaster Management Office</td>
<td>29</td>
</tr>
<tr>
<td>Emergency Operations Centres</td>
<td>30</td>
</tr>
<tr>
<td>Process for Declaring a Natural Disaster</td>
<td>30</td>
</tr>
<tr>
<td>The Role of NGOs in Disaster Response</td>
<td>30</td>
</tr>
<tr>
<td>Fiji Red Cross</td>
<td>30</td>
</tr>
<tr>
<td>International Assistance under the NDMA</td>
<td>31</td>
</tr>
<tr>
<td>National Disaster Management Plan</td>
<td>31</td>
</tr>
<tr>
<td>Departmental Disaster Management Planning</td>
<td>31</td>
</tr>
<tr>
<td>Requests for International Assistance</td>
<td>32</td>
</tr>
<tr>
<td>Offers of International Assistance</td>
<td>32</td>
</tr>
<tr>
<td>Legal Status of Organisations and Personnel Providing Assistance</td>
<td>33</td>
</tr>
<tr>
<td>Non-Governmental Organizations</td>
<td>33</td>
</tr>
<tr>
<td>International Organizations</td>
<td>33</td>
</tr>
<tr>
<td>Customs and Taxation Requirements for Relief Goods, Medicines and Equipment</td>
<td>33</td>
</tr>
<tr>
<td>Access to and Costs of Facilities</td>
<td>34</td>
</tr>
<tr>
<td>Transport and Movement of Personnel and Relief Goods/Equipment within Fiji</td>
<td>35</td>
</tr>
<tr>
<td>Information Sharing</td>
<td>35</td>
</tr>
<tr>
<td>Preparedness and Training</td>
<td>35</td>
</tr>
<tr>
<td>Operational Issues</td>
<td>36</td>
</tr>
<tr>
<td>Logistics</td>
<td>36</td>
</tr>
</tbody>
</table>
B. CONTEXT

INTRODUCTION

Fiji is located in one of the most vulnerable and highly at risk location to disasters in the world. About one or two cyclones hits the country every year and floods and flash floods - because of climate change - has become a common occurrence. Over the last decade, damage caused by tropical cyclones alone has been estimated at more than $500 million and more than 100 lives have been lost. Tropical Cyclone Ami, which struck the Northern and Eastern Divisions in 2003, caused social and economic losses of more than $100 million, whilst the floods in April 2009 caused damages estimated at more than $30 million.

Throughout history, emergencies and disasters have inflicted a heavy cost in human, material, and physical resources, and damage to the country. Disasters’ situation is further aggravated by the disruption, dislocation or loss of vital economic production and national infrastructure including water supply, power and communication and transportation.

Fiji is a country vulnerable to a number of natural hazards such as cyclone, flood, earthquake, fire, landslide and drought. Of these, cyclones, with their accompanying strong winds, flood and storm surge, are the most frequent have one of the most damaging effects. Earthquake, with its secondary hazards such as tsunami, fire (in urban areas) and landslide, although not frequent, nevertheless has the potential to cause massive devastation. Drought is dictated by El Nino phenomena (3-5 year period).

The government of Fiji has established the National Disaster Management Plan 1995, enacted a Natural Disaster Management Act 1998, and prepared hazard specific response plans/procedures such as the Cyclone Response Plan/Procedures. The Act, Plan and programmes are being implemented to prevent or mitigate the effects of hazards and events, to prepare for and respond to them, and to return the country and its people to normal and productivity.

However, it is important to mention that some of the policies, plans and programmes may not be mentioned yet in the National Disaster Management Plan – as this one still needs to be updated.

This document should be used by government departments, provincial governments, NGOs, private industry and diplomatic missions as a guide for producing their own internal emergency procedures and response plans.

Adequate procedures for dealing with specific emergency and disaster situations and relief measures are still to be finalized. Regular training needs to be conducted covering all aspects of emergency and disaster management. Careful planning measures need to be in place to co-ordinate the effective use of resources, both human and physical, for the saving of lives and property, limiting damage to the environment, and the return to a normal life style as soon as possible. Measures must also be in place to co-ordinate activities with regional and international organizations and to request and receive assistance from outside the country.

Over the years, a disaster culture was created resulting in every citizen of the country participating in emergency and disaster prevention and preparedness to reduce the impacts of events to an acceptable level.

The National Disaster Management Office (NDMO) has primary responsibility for coordinating activities before, during and after emergency and disaster situations. The Chair of the National Disaster Management Council (NDMC) and the National Disaster Controller take their appointment by virtue of the Natural Disaster Management Act 1990.

Members of the three sub-committees of the Council are drawn from line agencies depending on their roles. These committees are:

- Prevention and Mitigation Committee,
- Preparedness Committee,
- Emergency Committee
Disaster service liaison officers (DSLO's) are appointed by all agencies to provide effective operations and co-operation during emergencies, and to liaise on preparedness and mitigation activities.

The Fiji Council of Social Services (FCOSS) is the umbrella body for NGO’s, whilst the Red Cross operates independently. Other social organisations are aligned to FCOSS or Red Cross. These organisations are active in the country and have representative members in communities. There are also active service organizations like Rotary and Lions Club who have been involved in emergency and disaster management programmes. The St. Johns Ambulance is responsible for all emergency ambulance services in the country.

The National Disaster Management Plan was established in 1995. Support plans for cyclones, tsunamis and earthquakes have been developed. Other support plans – as an Emergency Logistics Response plan – are still to be developed.

**BACKGROUND INFORMATION**

The National Disaster Management Plan (NDMP) of 1995 is a comprehensive plan centered largely on the emergency management part of the natural hazard management cycle. The natural hazard management cycle is essentially in two parts:

a) The emergency management component, which comprises of preparedness for the disaster, response after the disaster has occurred, and the recovery or rehabilitation and development of the stricken region;

b) The risk management component is the prevention and the mitigation part of the hazard management cycle.

The NDMP details agency roles and responsibilities, emergency operations, relief and rehabilitation, mitigation and public awareness and training on disaster management in Fiji, from the national level, to divisional level and right down to district level. It has a strong emphasis on emergency or disaster management while reference is made within the plan of the role of other government departments in risk management; tsunamis and earthquakes with the Mineral Resources Department, coastal riverine flooding with the Drainage, and Irrigation Department and flood control and watershed management programme with the Ministry of Agriculture, Forest and Fisheries, Land and Water Resources Management Department.

A natural progression was to enact an Act that would govern Natural Disaster Management and so in 1998, the Natural Disaster Management Act was passed by the Fiji Parliament, mandating the government and relevant agencies to function more effectively in relation to managing natural disasters. This saw the establishment of the National Disaster Management Office as well as the continuation of the functions of the various government departments with a role in the natural hazard management cycle.

**REVIEWS OF THE DISASTER MANAGEMENT FRAMEWORK**

Reviews of the Natural Disaster Management Act 1998 and the 1995 National Disaster Management Plan were due for completion in 2006. The reviews were prompted by a number of national and international factors.

The principal recommendations were to include manmade hazards including technological hazards in the Act and Plan and to institute qualitative improvements in legislation, regulations, organisation, operating procedures, training and readiness. The reviews stressed that an effective crisis and emergency management system under national leadership is essential. The review also aimed to put in place a system in dealing with disaster risk reduction and planning for effective
preparedness, response and recovery. The focus on community capacity building aimed to reduce dependency and to achieve community resilience and sustainable development.


C. TYPES OF HAZARDS IN FIJI

DEFINITION

DISASTER – “a natural or human caused event that causes intense negative impacts on people, goods, services and/or the environment exceeding the affected community’s coping capability to respond adequately.”

TYPES OF DISASTERS

Disasters are often classified according to their causes (natural or human-caused) and their speed of onset (sudden or slow).

- Causes –Natural-caused or human caused
- Types – Sudden onset or slow onset

The NDRMA sets out the arrangements for disaster risk reduction and disaster management in Fiji. It also ushers in a new focus for the national disaster machinery in terms of assigning overall responsibility for the management of both natural and human-caused disasters.

The NDRM acknowledges the following as natural and human caused disasters.

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<table>
<thead>
<tr>
<th>Natural</th>
<th>Human Caused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclone</td>
<td>Aircraft Accident – Air/Sea/Land</td>
</tr>
<tr>
<td>Drought</td>
<td>Animal Disease</td>
</tr>
<tr>
<td>Earthquake</td>
<td>Epidemics / Pandemics</td>
</tr>
<tr>
<td>Flood</td>
<td>Fire – bush /structure</td>
</tr>
<tr>
<td>Landslide</td>
<td>Hazardous Materials Spills – Marine / Land</td>
</tr>
<tr>
<td>Storm Tide (surge)</td>
<td>Invasive species</td>
</tr>
<tr>
<td>Tsunami</td>
<td>Mass Civil Disorder</td>
</tr>
<tr>
<td>Volcanic Eruptions</td>
<td>Oil Spill – Marine / Land</td>
</tr>
<tr>
<td></td>
<td>Shipping Accidents</td>
</tr>
</tbody>
</table>

Source: Adapted from Fiji Draft NDRM 2006
## Classification of Disasters

<table>
<thead>
<tr>
<th>Natural Disasters</th>
<th>Primary Disasters</th>
<th>Secondary Disasters</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthquake</td>
<td>Earthquake</td>
<td>Tsunami</td>
<td>Sudden onset</td>
</tr>
<tr>
<td>Marine Slump Slide</td>
<td>Tsunami</td>
<td>Coastal Erosion</td>
<td>Sudden onset</td>
</tr>
<tr>
<td>Cyclones</td>
<td>Cyclone</td>
<td>Landslides</td>
<td>Slow onset</td>
</tr>
<tr>
<td>Monsoon Rain</td>
<td>Flood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>El Nino/Droughts</td>
<td>Drought</td>
<td>Bush Fire</td>
<td>Slow onset</td>
</tr>
<tr>
<td>Volcano</td>
<td>Volcanic eruptions</td>
<td></td>
<td>Slow onset</td>
</tr>
<tr>
<td>Ash Falls</td>
<td>Pyroclastic Flow</td>
<td></td>
<td>Sudden onset</td>
</tr>
<tr>
<td>Mud Flow</td>
<td>Marine Volcanic Eruption</td>
<td>Tsunami</td>
<td>Sudden onset</td>
</tr>
<tr>
<td>Landslide</td>
<td>Landslide</td>
<td>Dam build-up</td>
<td>Sudden onset</td>
</tr>
<tr>
<td>Pest Infestation</td>
<td>Agricultural Infestation</td>
<td>Food shortages</td>
<td>Slow onset</td>
</tr>
<tr>
<td>Bird Flu</td>
<td>Epidemic</td>
<td>Epidemic outbreak</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Manmade Disasters</th>
<th>Primary Disaster</th>
<th>Secondary Disaster</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accident</td>
<td>Road Accident</td>
<td></td>
<td>Sudden onset</td>
</tr>
<tr>
<td>Fire</td>
<td></td>
<td></td>
<td>Sudden onset</td>
</tr>
<tr>
<td>Political / Social Cause</td>
<td>Riots</td>
<td>Tribal Conflict</td>
<td>Slow onset</td>
</tr>
<tr>
<td>Civil unrest</td>
<td>HIV/AIDS</td>
<td></td>
<td>Slow onset</td>
</tr>
<tr>
<td>Biological / Chemical Cause</td>
<td>Pollution</td>
<td></td>
<td>Slow onset</td>
</tr>
<tr>
<td>Chemical spills</td>
<td></td>
<td></td>
<td>Sudden onset</td>
</tr>
</tbody>
</table>

## Disaster Probability

Fiji is particularly prone to natural disasters. This is because of its tectonic setting, geology, geography, topography and climate. Although the occurrence of natural hazards has not increased appreciably through time, the increase in population & population movements, intensive agriculture and growth of touristic infrastructure means that their damaging effects can only increase.

## Fiji Risk Profile

<table>
<thead>
<tr>
<th>Hazard</th>
<th>% Pop. Exposed</th>
<th>Ranking</th>
<th>% GDP Exposed</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclone</td>
<td>15.69%</td>
<td>10th out of 89</td>
<td>16.02%</td>
<td>8th out of 89</td>
</tr>
<tr>
<td>Tsunami</td>
<td>7.05%</td>
<td>3rd out of 76</td>
<td>3.45%</td>
<td>4th out of 76</td>
</tr>
<tr>
<td>Earthquake</td>
<td>0.32%</td>
<td>97th out of 153</td>
<td>0.15%</td>
<td>109th out of 153</td>
</tr>
<tr>
<td>Hazard</td>
<td>% Pop. Exposed</td>
<td>Ranking</td>
<td>% GDP Exposed</td>
<td>Ranking</td>
</tr>
<tr>
<td>-------------------------</td>
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</tr>
<tr>
<td>Landslide</td>
<td>0.13%</td>
<td>12th out of 162</td>
<td>1.25%</td>
<td>13th out of 162</td>
</tr>
</tbody>
</table>

Source: World Bank

D. TYPOLOGY OF HAZARDS
Here we will take an overview of just few 'Natural Hazards':

- Cyclones
- Floods
- Earthquakes
- Tsunamis
- Landslide/Land Movement
- Droughts

CYCLONES
Fiji’s location in the South Pacific Ocean between 15-22° South and 175-178° West, exposes the country to tropical cyclones.

The most frequent and widespread destruction from natural disasters in Fiji is caused by tropical cyclones. The tropical cyclone season is from November to April, with peak occurrences between January and March. However, some tropical cyclones were recorded in October and May.

Statistics so far indicate that Fiji experiences the direct effect of some 10 to 15 tropical cyclones per decade. A number of these would produce only marginal gales. On average about three to five cyclones cause severe damage in a decade. In most parts of Fiji, individual localities would experience the nearby passage (within 70 km) of tropical cyclones some three to four times per decade. Not all will have destructive intensity at the time they pass. Individual localities are likely to be exposed to moderate or severe damage about twice in a decade.

There is, of course, wide annual variation in occurrence with some years recording no cyclones at all, while in some others they are well above average. For example, there were four cyclones affecting Fiji in 1985 with at least two causing extensive damage. Tropical Cyclone Kina (1-3 January 1993) caused widespread destruction and the worst flooding in some sixty years.

Figure below shows the path of the eye, or center, of major tropical cyclones having affected Fiji since 1945. These storms can be very wide, with damaging winds and rain extending throughout Fiji. The color of the path reflects the intensity of the storm, as measured using the Saffir-Simpson tropical cyclone scale. A more intense storm such as a category 4 or 5 has more damaging winds, higher precipitation rates and storm surge levels.

Figure: Selected historical Tropical Cyclone Activity in Fiji since 1945
The cost of tropical cyclones and associated rainfall, flooding, storm surges, salt spray and high winds in Fiji is often high.

- The most expensive event in recent years was Tropical Cyclone Kina (1993) with total damage estimated at US$100 million (equivalent to 7% of Fiji’s GDP) (Fairbairn, 1997). Following Kina, Tropical Cyclone Ami (2003) resulted in damages of US$30 million and Tropical Cyclone Gavin (1998) caused US$15 million worth of damage (OCHA, 2003).
- Cyclone Oscar (1983) affected 200,000 people, over a quarter of Fiji’s population.

Factors causing the damage following tropical cyclones are high winds, heavy rains as well as low atmospheric pressure. High wind causes heavy seas contributing to coastal erosion, and on land they also cause damage or destruction to infrastructures, to crops and vegetation and to transmission lines. Heavy rains are liable to trigger landslides and cause erosion, and frequently lead to flooding, both of major river systems and of small tributaries. Coastal plains, flood plains and mountain valleys are all affected. Low atmospheric pressure is liable to cause storm surge and trigger coastal inundation and coastal flooding. As the pressure falls, the sea surface is sucked up beneath the eye of the cyclone and the violent winds drive the swell and waves into shallow waters as they approach the coast. This may lead to extensive flooding, especially if the storm surge coincides with the astronomical (high) tide, resulting in coastal erosion and other effects.

Disruption of water supply, electricity, breakdown of communication lines and damage to roads are common after many cyclones and much of the efforts during the emergency stages are focused on their rehabilitation. The provision of relief food supplies to victims of cyclones through government channels is often considered after cyclones.
Specific plans (structural and conjectural) are in place in the country, such as the “2011/2012 TROPICAL CYCLONE SEASON SUMMARY OF ALERTS AND WARNINGS PROCEDURES FOR FIJI”

The Tropical Cyclone Warning Centre (TWTC) in Nadi is responsible for cyclone forecasting in Fiji and issues cyclone alerts and warnings.

**CHARACTERISTICS TROPICAL CYCLONES**

A. Causal phenomena
   - Mixture of heat and moisture forms a low pressure centre over oceans in tropical latitudes where water temperatures are over 26 degrees C.
   - Wind currents spin and organise around deepening low pressure, accelerating towards the centre.
   - Depression becomes a tropical cyclone when winds reach gale force or 63 km/hr (34 knots/hr).

B. General characteristics
   - When the cyclone strikes land, high winds, exceptional rainfall and storm surges cause damage with secondary flooding and landslides.

A. Predictability
   - Tropical cyclones can be tracked from their development but accurate path forecasts are not always possible until a few hours before as unpredictable changes in course can occur.

B. Factors contributing to vulnerability
   - Settlements located in low lying coastal areas (direct impact)
   - Settlements located in adjacent areas (heavy rains, floods)
   - Poor communications or warning systems
   - Lightweight structures, older construction, poor quality masonry
   - Infrastructure elements, fishing boats and maritime industries

C. Typical adverse effects
   - Physical damage – Structure lost and damaged by wind force, flooding, storm surge and landslides
   - Casualties – May be caused by flying debris, or flooding
   - Water supply – Ground water may be contaminated by flood water
   - Public health - Contamination of water supplies may lead to viral outbreaks and malaria
   - Crops and food supplies – High winds and rains can ruin standing crops, trees plantations and food stocks
   - Communication and logistics – Severe disruption is possible as wind brings down telephone lines, antennas and satellite dishes. Transport may be curtailed.

D. Possible risk reduction measures
   - Risk assessment and hazard mapping
   - Land use control and flood plain management
   - Reduction of structural vulnerability
   - Improvement of vegetation cover

E. Specific Preparedness Measures
   - Public warning systems
   - Evacuation plans
   - Training and community participation
F. Typical post-disaster needs
   - Evacuation and emergency shelter
   - Search and rescue
   - Medical assistance
   - Water purification
   - Reestablish logistical and communication networks
   - Disaster assessment
   - Relief food supply
   - Provision of seeds for planting

FLOODS

Flooding is a significant hazard in Fiji, usually associated with cyclone or tropical depression rainfall. Fiji is subject to both coastal and river flooding.

High intensity rainfall is common during the wet season and floods of variable magnitude are an annual occurrence. Tropical cyclones are a primary cause of high rainfall events, although freak storms produce similar rain. Short rivers and streams with steep slopes make flood forecasting in most of the river systems ineffective. Only qualitative forecasts can be made in these cases.

Since 1970, Fiji reported about 40 floods, which is about a third of the total of 124 natural disasters reported during the 1970-2007 period. Often floods are associated with cyclones but these may not be recorded as floods per se but as cyclone events. Thus the incidence of floods could be greater than recorded.

Floods causes in Fiji:

- Result from heavy and prolonged rainfall, when the water level in rivers and streams rises over the banks and inundates the surrounding land.
- Are associated with cyclones when sudden water surge affect the landfall areas.
- Deforestation, indiscriminate land cultivation and poor soil conservation techniques have increased erosivity and caused heavy siltation of waterways thereby increasing the risk of flooding. Poor and unmaintained drainage systems and extensive urban development has increased the potential of flooding in urban areas.

Floods typology in Fiji:

A. Flash Floods occur within a few hours of torrential rains with little or no warning and dissipate rapidly. This is the most common form of flooding in Fiji and occurs frequently.

B. Rapid-Onset Floods occur within several hours of heavy rainfall, can last several days and are specific to medium-sized river catchments. In April 2004, the Central and Western Divisions experienced widespread flooding as a result of heavy rainfall associated with two tropical depressions (National Disaster Management Office, 2004). There were ten confirmed deaths and a further ten people missing, presumed dead and a preliminary estimate of damage placed the cost at over F$20 million (=AU$14.75 million, US$12.7 million) (National Disaster Management Office, 2004).

C. Slow-Onset Floods are only characteristic of large river systems (like the Sepik, PNG) and don’t occur in Fiji

Main flood prone areas
The largest catchment, the Rewa river systems, has a network of six radio telemetry stations that provides real time data which is used for forecasting. A lead time of up to eight hours gives sufficient time for the dissemination of warning and advisories for the public to take action.

All other catchments are small and have too short a lead time to provide any useful of effective forecasts.

**Consequences**

Floods disturb fragile island economies by affecting individuals, businesses, insurance companies and governments. The costs of flooding are high. For example, Fiji’s economy suffers annually losses of some FJD 20 million on average due to flooding.

**The 2009 floods**

The January 2009 floods in Fiji were reported as the worst in the history of the country since the 1931 floods. Many parts of the country were affected by a number of consecutive flood events that spread over several days. The floods affected areas from Western Viti Levu where the impact was greatest, to the Northern and Central Divisions of Fiji. With excessive rainfall experienced for over a week most of the low lying areas in the country were under water for days and in places experienced flood levels of up to 3-5 metres.

Almost 12,000 people became homeless, and lost all their possessions. Many roads, bridges and other infrastructure have been damaged or washed away. Included in the affected area was the sugar belt. Many sugar cane farms, cane access roads & rail infrastructures and mills were significantly affected by the floods.

*Source: International Union for Conservation of Nature; Kirstie Méheux, 2007; NDMO*

**Characteristics of Floods**

A. Causal phenomena
   - Naturally occurring flash, river and coastal flooding from intense rainfall or inundation associated with seasonal weather patterns.
   - Human manipulation of watersheds, drainage basins and floodplains.

B. General characteristics
   - Factors affecting degree of danger – depth of water, duration, velocity, rate of rise, frequency of occurrence, seasonability
   - Flash floods – Accelerated runoff, dam failure, sudden heavy rainfall
   - River floods – Slow buildup, usually seasonal in river systems
   - Coastal floods – Associated with tropical cyclones, tsunami waves, storm surges

C. Predictability
   - Flood forecasting depends on seasonal patterns, capacity of drainage basin, flood plain mapping surveys by air and land. Some warning is possible well in advance for seasonal floods, but sometimes only a little before in case of a flash floods and tsunami.

D. Factors contributing to vulnerability
   - Location of settlements on floodplains
– Lack of awareness of flooding hazard
– Reduction of absorptive capacity of land (erosion, concrete)
– Non-resistant buildings and foundations
– High risk infrastructural elements
– Unprotected food stocks and standing crops, livestock
– Fishing boats and maritime industries

E. Typical adverse effects
– Physical damage – Structures damaged by washing away, becoming inundated, collapsing, and impact of floating debris. Landslides from saturated soils. Damage greater in valleys than in open areas.
– Casualties – Deaths from drowning but generally few serious injuries
– Water supply – Contamination of wells and ground water possible. Clean water may be unavailable
– Public health – Possible outbreaks of malaria, diarrhea and viral infections
– Crops and food supplies – Harvests and food stocks may be lost.

F. Possible risk reduction measures
– Flood control – Channels, dikes, dams, Flood-proofing, erosion control
– Risk assessment and hazard mapping
– Land use control and flood plain management
– Reduction of structural vulnerability
– Improvement of vegetation cover

G. Specific Preparedness Measures
– Flood detection and warning systems
– Community participation and education
– Development of master plan for floodplain management

H. Typical post-disaster needs
– Search and rescue
– Medical assistance
– Disaster assessment
– Water purification
– Short term food and water supplies
– Epidemiological surveillance
– Temporary Shelter

EARTHQUAKES

Fiji is situated in the Pacific ‘ring of fire’ and frequent small earthquakes occur in the country. Earthquakes that inflict damage on the country are less frequent, but certainly do happen. An earthquake in 1953 off the coast of Suva with a magnitude of 6.75, and the tsunami it caused, has caused considerable destruction and loss of life. Since then, the vulnerability to earthquakes seems to have increased because extensive new developments have taken place, often on reclaimed land. It should be expected that another large earthquake close to Suva would now result in a great number of casualties and more damage than in 1953.

The building code adopted for Fiji includes specifications to resist earthquakes which may have contributed to increased strength of buildings to withstand earthquakes. Nevertheless, earthquakes could have a devastating impact.
The public awareness of earthquakes is low compared to cyclones. Although most people are aware that earthquakes pose a possible threat to the country, the infrequent occurrence of damaging earthquakes makes it more difficult to actually influence behaviour.

The Fiji National Seismograph Network (FNSN) operated by the Mineral Resources Department monitors earthquakes occurring throughout the Fiji islands. The Mineral Resources Department has prepared a preliminary earthquake risk-zoning map for Fiji. This macro-zonation gives an indication of the relative probability of the occurrence of a large shallow earthquake in parts of Fiji.

The zones with the greatest level of earthquake activity are the Taveuni-Udu area, the southwestern parts of Kadavu and the Northern Yasawas. The medium activity area extends from the southern part of Taveuni and Vanua Levu, through Koro Island, Gau Island, Ovalau, and eastern and southern Viti Levu as far as northwestern Kadavu. The rest of Fiji is a region of relatively low earthquake activity.

**Earthquakes prone areas**

A preliminary assessment of earthquakes in Fiji indicates that earthquakes mostly occur in several zones with varying levels of earthquake activity. Those having the greatest earthquake activity are the Taveuni-Udu area, the south western parts of Kadavu and the northern Yasawas. The medium activity extends from the southern part of Taveuni and Vanua Levu, through Koro islands, Gau islands, Ovalau, eastern and southern Viti Levu, as far north as north-western Kadavu. The rest of Fiji is a region of relatively low earthquake activity. However the earthquake record for Fiji is too short (about 15 years) to draw conclusions on where earthquakes will not occur.

In November 1998, a swarm of around 200 earthquakes, most of a magnitude less than ML4 affected Kadavu, with a major shock registering ML5.3, and having a Modified Mercalli intensity of VI-VII (Cronin et al, 2004). These earthquakes resulted in widespread small landslides (>100) which blocked roads and threatened buildings, concrete buildings were also cracked and residents in a number of villages self-evacuated (Cronin et al, 2004).

The majority of Fiji lies within an area that has a 10 percent chance of experiencing an earthquake of Modified-Mercalli intensity VIII – IX in a 50 year period (Johnson et al, 1995) (see figure above).

*Source: Kirstie Méheux, 2007; OFDA 2009*
CHARACTERISTICS OF EARTHQUAKES

A. Causal phenomena
   – Slippage of crustal rock along a fault or area of strain and rebound to new alignment

B. General characteristics
   – Shaking of earth caused by waves and below the earth’s surface causing:
     – Surface faulting
     – Aftershocks
     – Tsunamis
     – Tremors, vibrations
     – Liquefaction
     – Landslides

C. Predictability
   – Probability of occurrence can be determined but not exact timing. Forecasting is based on monitoring of seismic activity, historical incidence, and observations.

D. Factors contributing to vulnerability
   – Location of settlements in seismic areas
   – Structures which are not resistant to ground motion.
   – Dense collections of buildings with high occupancy
   – Lack of access to information about earthquake risks

E. Typical adverse effects

Figure: Historical Earthquake Activity in Fiji since 1900

Source: AIR WORLDWIDE CORPORATION – World Bank
 – Physical damage – Damage or loss of structures or infrastructure. Fires, dam failures, landslides, flooding may occur.
 – Casualties – Often high, particularly near epicentre or in high populated areas or where buildings not resistant.
 – Water supply – Severe problems likely due to damage of water systems, pollution of open wells and changes in water table
 – Public health – Fracture injuries most widespread problem. Secondary threats due to flooding, contaminated water supply, or breakdown in sanitary

F. Possible risk reduction measures
 – Hazard mapping
 – Public awareness programme and training
 – Assessing and reducing structural vulnerability
 – Land use control or zoning and building codes
 – Insurance

G. Specific Preparedness Measures
 – Earthquake warning and preparedness programmes

H. Typical post-disaster needs
 – Search and rescue
 – Emergency medical assistance
 – Damage and needs assessment survey
 – Relief assistance
 – Repair and reconstruction
 – Economic recovery

**TSUNAMIS**

Fiji has, during its history, been affected by tsunami. The likelihood of tsunami differs between locations in Fiji. Based upon the magnitudes of known tsunami, there is moderate tsunami potential in the Central-Southeast islands of the Fiji Group (where tsunami have been recorded with wave run-up heights of 2-4m). Coastlines in the Northwest of the group are identified as having a low tsunami potential as tsunami have either not been reported or those reported in the area have run-up heights of less than 2m (Johnson et al, 1994).

Earthquakes occur in several zones, with some of the largest earthquakes in Fiji occurring in the north-eastern region of the country. This region is considered to be the Islands’ most active earthquake zone (Vuetibau, 2004). The main islands of Fiji, Viti Levu and Vanua Levu, are within a seismically active area within the Fiji Platform (Rahiman, 2006). This and the seismicity of the plate boundary zone between the Pacific and Australian Plates and the Pacific Ring of Fire mean Fiji is susceptible to tsunami generated by local, regional and distant (or ocean wide) events (from sources 100 km, 1000 km, >1000 km respectively). The impact of tsunami on Fiji is variable and dependant on the shape of the seafloor between the source and the affected area (Thomas, Burbidge and Cummings, 2007).

For Mw 8.5 earthquakes Fiji is placed in Category 3 (normalised amplitude of 75 – 150cm). For Mw 9.0 events, Fiji is placed in Category 5 (normalised amplitude of >250cm).

The Tonga trench, with some contribution from the New Hebrides trench dominates the tsunami hazard to Fiji with maximum amplitudes 1 to 3.3 metres (Thomas and Burbidge, 2009). Thomas and Burbidge state that amplitudes on the eastern islands and on the eastern coast of Vanua Levu are significantly higher than elsewhere in Fiji.
There have been several recorded incidences of tsunami events within Fiji. The Pacific Disaster Centre’s (PDC) states that “Fiji experienced 17 tsunami events between 1877 and 2004”. Of these, four had recorded wave heights ranging between 0.5 and 5 metres above mean sea level. Fiji’s Seismology Section of the MRD states that “eleven tsunamis have been recorded in Fiji, of which three were generated within Fiji waters” (Prasad, 1991).

Most of Fiji’s 300 islands are volcanic in origin and have a range of fringing and barrier reefs.

Local tsunami can be generated by submarine landslides caused by earthquakes (Pearce, 2008, D11). In 1953, a magnitude 6.8 earthquake originating offshore from Suva, Viti Levu triggered a coral reef platform collapse, which in turn generated a local tsunami. The tsunami itself killed five people. The tsunami wave heights ranged from 0.7 to 5.0 metres above mean sea level. A wave height of 4.3 metres was recorded in Nakasaleka in Kadavu. Eyewitness accounts indicate that the first wave took only 3 minutes to reach Suva (Pacific Disaster Centre, 2005 and Rahiman, 2006).

Three other significant events have been caused by earthquakes that occurred off the island of Vanua Levu in 1881 and off the cost of Chile in South America in both 1877 and 1960. During the 1960 Chile event, the tsunami waves took approximately 13 hours to reach Suva.

A small tsunami was generated in 1975 by a moderate earthquake in Fiji’s Kadavu Passage. Once again, this local tsunami resulted from an underwater landslide (Gajendra, 1991).

Investigation of the Bureau’s deep ocean model-based tsunami prediction system demonstrates that the local and regional subduction zone threat sources for the Fiji Islands are the New Hebrides and Tonga Trenches. There is also limited threat from the Kermadec Trench and the South Solomon Trench. Travel times for tsunami from these sources vary but are typically between 2 to 2.5 hours from the New Hebrides and Tonga Trenches and approximately 3 to 3.5 from the South Solomon and Kermadec Trenches. More remote source, such as those from Peru-Chile, USA, Canada, Japan and the Kuril also pose a tsunami threat to Fiji but only for major earthquakes of at least magnitude 8.0 and above. These sources are more than 10 hours away. Adequate time for warning and evacuation would therefore exist from an efficient tsunami warning system.
CHARACTERISTICS OF TSUNAMIS

A. Causal phenomena
   – Fault movement on sea floor, accompanied by an earthquake
   – A landslide occurring underwater or above the sea, then plunging into the water
   – Volcanic activity either underwater or near the shore

B. General characteristics
   – Tsunami waves are barely perceptible in deep water and may measure 150 km between wave crests
   – May consist of ten or more wave crests
   – Move up to 800 km per hour in deep water of ocean, diminishing in speed as the wave approaches shore
   – May strike shore in crashing waves or may inundate the land
   – Flooding effect depends on shape of shoreline and tides

C. Predictability
   – Tsunami Warning System in the Pacific monitors seismic activity and declares watches and warnings. Waves generated by local earthquakes may strike nearby shores within minutes and warnings to public may not be possible or based on seismic activity only.

D. Factors contributing to vulnerability
   – Location of settlements in low lying coastal regions
− Lack of tsunami resistant buildings
− Lack of timely warning systems and evacuation plans
− Unawareness of public to destructive forces of tsunamis

E. Typical adverse effects
− Physical damage – The force of water can raze everything in its path but the majority of damage to structure and infrastructure results from flooding. Withdrawal of the wave from shore scours out sediment and can collapse ports and buildings and batter boats.
− Casualties and public health – Deaths occur principally by drowning and injuries from battering by debris
− Water supply – Contamination by salt water and debris or sewage may make clean drinking water unavailable
− Crops and food supplies – Harvests, food stocks, livestock and fishing boats may be lost. Land may be rendered infertile due to salt-water incursion.

F. Possible risk reduction measures
− Protection of buildings along coast, houses on stilts
− Building barriers such as breakwaters

G. Specific Preparedness Measures
− Hazard mapping
− Planning evacuation routes
− Establish warning systems
− Community education

H. Typical post-disaster needs
− Evacuation
− Search and rescue
− Medical assistance
− Disaster assessment
− Provision of water, food and shelter

LANDSLIDE/LAND MOVEMENT

Landslides occur annually throughout Fiji during the ‘wet season’ between November and April. Their impact on the Fiji community and economy has in many instances been disastrous, with loss of lives and property. Worst affected is the area along coastal southeast Viti Levu. Landslides are often triggered by heavy rainfall, but can also be activated by earthquakes, deforestation, agricultural practice or building and road construction activity.

Landslides often occur in combination with other natural disasters, in particular cyclones and floods, and often block essential emergency communication lines. The most extensive landslides recorded followed Cyclone Wally in 1980. The road from Navua to Yarawa in the Southeast of Viti Levu was during this event blocked by 45 huge landslides. In the aftermath of Cyclone Kina in January 1993, a large number of landslides were recorded. Approximately half of those landslides were related to road construction practices.

The effects of landslides are becoming increasingly important, because many of the urban expansion areas are potential landslide risk areas. It is expected that urban expansion and increased agricultural activity will increase the need for adequate landslide hazard assessments as a basis for the programming of development efforts.
Following Cyclone Wally in 1980, the most extensive landslides were recorded, when the road from Navua to Yarawa was blocked by 45 huge landslides (Government of Fiji, 1995).

- Landslides are also associated with earthquake activity (for example on Kadavu in 1998). Areas particularly susceptible to landslide are illustrated in Figure above.
- After cyclone Kina in January 1993, a reconnaissance mission of Mineral Resources Department and SOPAC reported 160 landslides, of which 130 were associated with roads constructed using the "cut and fill" method.
- Recent landslides in Rabi resulted in 8 deaths.

Source: Kirstie Méheux, 2007; OFDA 2009; NDMO

CHARACTERISTICS OF LANDSLIDES

A. Causal phenomena
   - Downslope transport of soil and rock resulting from naturally occurring vibrations, changes in direct water content, removal of lateral support, loading with weight, and weathering, or human manipulation of water course and slope composition.

B. General characteristics
   - Landslides vary in types of movement (falls, slides, topples, lateral spread flows and may be secondary effects of heavy storms, earthquakes, and volcanic eruptions.
   - More widespread than any other geological event

C. Predictability
   - Frequency of occurrence, extent and consequences of landslides may be estimated and areas of high risk determined by use of information on area geology, geomorphology, hydrology, climatology and vegetation.

D. Factors contributing to vulnerability
   - Settlements built on steep slopes, softer soils, cliff tops
   - Settlements built at the base of steep slopes, on mouths of streams from mountain valleys
   - Roads, communication lines in mountain areas
   - Building with weak foundations
   - Buried pipelines, brittle pipes
   - Lack of understanding of landslide hazard

E. Typical adverse effects
   - Physical damage – Anything on top or in path of landslides will suffer damage. Rubble may block roads, lines of communication or waterways. Indirect effects may include loss of productivity of agricultural forestlands, flooding, reduced property values.
   - Casualties – Fatalities have occurred due to slope failure. Catastrophic debris slides or mudflows have killed many thousands.

F. Possible risk reduction measures
   - Hazard mapping
   - Legislation and land use regulation
   - Insurance

G. Specific Preparedness Measures
   - Community education
   - Monitoring, warning and evacuation systems

H. Typical post-disaster needs
   - Search and rescue (with use of earth removal equipment)
   - Medical assistance
   - Emergency shelter
Droughts

Prolonged periods of rainfall deficiency are of increasing concern to development. Seasonal and inter-annual variation in rainfall over large areas has reduced production of crops and taxed government resources in cartage of fresh water to drought-stricken localities. Of particular concern are small islands where water has to be barged during the dry season (April to November). Small water supply systems are usually affected most and because of the distance they are the most expensive to service.

Droughts which occur in Fiji are linked to the El Nino Southern Oscillation (ENSO) and associated reductions in rainfall. During the 1983, 1992 and 1998 droughts, it was necessary for the Government to ship emergency water and food rations to affected areas.

It cost up to a million dollars of government funds to facilitate these emergency supplies during each of the major dry periods.

The most vulnerable are agricultural crops, domesticated farm animals and industries that are dependent on large quantities of water. Our Monasavu Hydro-electricity dam ran short of water for several weeks during the 1992 drought.

In addition to this general picture, the Mineral Resources Department carries out studies into the water potential of different areas. This provides a basis for borehole schemes and other rural water supply programmes. The meteorology department also monitors drought with rainfall averages and the impact of El Nino.

Source: Kirstie Méheux, 2007; OFDA 2009; NDMO

Characteristics of Droughts

A. Causal phenomena
   – Immediate cause – Rainfall deficit
   – Possible underlying causes – El Nino (incursion of warm surface waters into the normally colder waters of the Eastern Pacific); human induced changes in ground surface and soil

B. General characteristics
   – The water or moisture availability is significantly reduced in relation to the norm
   – Meteorological drought – occurs when rainfall is well below expectation in any large area for an extended period.
   – Hydrological drought – occurs when there is a sustained deficit in surface runoff below normal conditions or depletion of groundwater levels.
   – Agricultural drought – occurs when rainfall amounts and distribution, soil water reserves and evaporation losses combine to cause crop or livestock yields to diminish markedly

C. Predictability
   – Periods of unusual dryness are common in the normal dry season. No known method exists to reliably predict the occurrence, continuation, cessation or recurrence of drought.
   – However, analysis of climatological data can help prepare probability assessments of such events.
   – Large-scale droughts in Fiji have been generally known to occur during major El Nino Southern Oscillation episodes. There appears to be a four to five year cycle of such events.

D. Factors contributing to vulnerability
   – Location in an area where dry conditions are increased by drought
   – Farming on marginal lands, subsistence farming
   – Lack of agricultural inputs to improve yields
– Lack of seed reserves
– Areas dependent on other weather systems for water resources
– Areas of low soil moisture retention
– Lack of recognition and allocation of resources to drought hazard

E. Typical adverse effects
– Reduced income for farmers
– Loss of livestock
– Reduction of spending from agricultural sector
– Increase in price of staple foods
– Increased inflation rates
– Deterioration of nutritional status, famine, illness, death
– Reduction of drinking water sources
– Migration, breaking-up of communities

F. Possible risk reduction measures
– Development of inter-institutional response plan

G. Specific Preparedness Measures
– Drought and famine early warning systems

H. Typical post-disaster needs
– Measures to maintain food security
– Price stabilization
– Food subsidies
– Employment creation programmes
– General food distribution
– Supplementary feeding programmes
– Special programmes for livestock and pastoralists
– Complementary water and health programmes
– Rehabilitation
E. FijI Disasters Risk Profile
Fiji experiences tropical cyclones and flooding during the summer months of November to April with an average of two cyclones a season. Over the last two years Fiji has requested outside assistance for cyclone, storm and flooding related disasters twice.

Fiji also has experienced landslides, storm surges, and tsunamis. Since the islands are primarily volcanic in origin, the possibility of volcanic activity and earthquakes is ever present but of somewhat lesser concern.

Government authorities and independent analysts have reviewed Fiji’s unique disaster management circumstances and have highlighted several factors that have a significant impact on any disaster relief operations. Those factors include, but are not limited to:

- Extreme vulnerability (meteorologically/geologically and types/scope of disasters)
- the extreme distances and difficulties involved in spanning open seas from other islands and countries;
- the physical logistics and financial procedures required in allocation and distribution of equipment, supplies and labor from within and outside of Fiji;
- the ethnologic sensitivities of providing equitable relief to all affected communities;
- the remoteness of the populations and location on smaller islands which make distribution and access problematic for many.

Fiji’s exposure to Tropical Cyclone, Earthquake, Tsunami, and Landslide

(Source: Johnson, 1995)
In the last 30 years, Fiji faced approximately one significant disaster/year.

Cyclones and floods are the most frequent hazard while droughts impact the largest populations.

Earthquakes and tsunamis, while significantly less frequent than the 2 main hazards, nevertheless represent a significant threat and a huge potential of damages on the coasts, Fiji’s main touristic strengths.
**Human Exposure**

Modelled number of people present in hazard zones that are thereby subject to potential losses.

<table>
<thead>
<tr>
<th>Hazard type</th>
<th>Population exposed</th>
<th>Percentage of population</th>
<th>Country ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclone</td>
<td>131,613</td>
<td>0 5 10 20 40</td>
<td>23rd out of 89</td>
</tr>
<tr>
<td>Drought</td>
<td>-</td>
<td>-</td>
<td>- out of 184</td>
</tr>
<tr>
<td>Flood</td>
<td>-</td>
<td>-</td>
<td>- out of 162</td>
</tr>
<tr>
<td>Landslide</td>
<td>1,062</td>
<td></td>
<td>62nd out of 162</td>
</tr>
<tr>
<td>Earthquake</td>
<td>2,651</td>
<td></td>
<td>114th out of 153</td>
</tr>
<tr>
<td>Tsunami</td>
<td>64,797</td>
<td></td>
<td>23rd out of 76</td>
</tr>
</tbody>
</table>

**Legend:**
- Tropical Cyclones (Saffir-Simpson categories)
  - Cat1
  - Cat2
  - Cat3
  - Cat4
  - Cat5
- Earthquake (modified Mercalli scale classes)
  - V & VI
  - VII
  - VIII
  - IX to XII

**Vulnerability and Risk**

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

Source: CRED / EM-DAT

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**F. DISASTER RISK MANAGEMENT FRAMEWORK**

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**MULTINATIONAL CONVENTIONS**
Whilst Fiji is a member of the World Customs Organisation, it is not party to the various Conventions and Annexes relevant to international disaster response such as the Convention on Temporary Admission (Istanbul Convention) or the International Convention on the Simplification and Harmonization of Customs Procedures (Kyoto Convention).

Fiji is not a signatory to the Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations, nor has it ratified or acceded to the Framework Convention on Civil Defence Assistance.

In 1992, France, Australia and New Zealand formed a partnership to jointly respond to natural disasters within the South Pacific – the FRANZ Agreement of 1992. Although Fiji is not a signatory to the agreement it is a beneficiary. The FRANZ Agreement allows military and disaster response officials to work efficiently together as the agreement provides procedures for information sharing, coordination of activities concerning disaster assessment and joint disaster relief operations. The relevance of the FRANZ Agreement to disaster management in Fiji cannot be underestimated. The three FRANZ members have been involved in early stages of past disaster relief to Fiji by providing critical and timely transport (ships, planes, helicopters), medical assistance and supplies.

**NATURAL DISASTER MANAGEMENT ACT OF 1998**

The form and structure of Fiji’s national disaster management regime is found in the Natural Disaster Management Act (NDMA) of 1998. For the purposes of the Act, “disaster” means:

“a natural disaster and includes the occurrence of a major misfortune which disrupts the basic fabric and normal functioning of the society or community, or an event or series of events which give rise to the casualties, and/or damage or loss of property, infra-structure, essential services or means of livelihoods on a scale which is beyond the normal capacity of affected communities to cope with unaided, but does not include man-made disasters.”

The Act establishes a number of different bodies and individuals responsible for various aspects of disaster management. The main bodies are as follows:

**NATIONAL DISASTER MANAGEMENT COUNCIL**

The National Disaster Management Council (‘the Council’) is responsible for disaster management and policies, which makes recommendations to the Cabinet of the Fiji Government. It is comprised of the Permanent Secretaries of various Government Ministries, as well as the Fiji Red Cross, and is chaired by the Minister responsible for disaster management. The Council also has three Committees, comprising different members of the Council. These are: the Emergency Committee, which has central control during an emergency; the Preparedness Committee, which is responsible for community awareness activities; and the Mitigation and Prevention Committee, which coordinates disaster mitigation activities.

**NATIONAL DISASTER CONTROLLER**

The National Disaster Controller is the Permanent Secretary to the Provincial Development Minister responsible for disaster management/Chair of the Council. The role of the National Disaster Controller is to coordinate and plan disaster management measures, to advise the Minister/Chair of the Council on disaster management issues and can direct government resources for disaster activities as required. During a disaster, the National Disaster Controller exercises power primarily through the National Disaster Coordinator (described below).

**NATIONAL DISASTER MANAGEMENT OFFICE**

The National Disaster Management Office (NDMO) is responsible for the day-to-day operation of disaster management activities and implementation of Council policies, and is headed by a Director, who is also the National Disaster Coordinator. The National Disaster Coordinator coordinates the activities of the NDMO, provides advice to the National Disaster
Controller and liaises with the various agencies and NGOs involved in disaster management, under the general direction of the National Disaster Controller. The National Disaster Coordinator is also responsible for the development of the National Disaster Management Plan, National Support Plans and related training.

**Emergency Operations Centres**

In times of emergency the National Emergency Operations Centre is activated and managed by the NDMO under the supervision of the National Disaster Coordinator and in accordance with standard operating procedures. Similarly, relevant Divisional and District Emergency Operations Centres are activated and managed by Divisional and District Commissioners. Thus the Emergency Operations Centres represent a temporary three tiered, hierarchical structure for operational coordination and command.

**Process for Declaring a Natural Disaster**

If a natural disaster is to be formally declared, the following procedure is outlined in the NDMA:

- A Divisional Commissioner or agency personnel informs the National Disaster Controller and the National Disaster Coordinator.
- The National Disaster Controller then convenes a meeting of the National Disaster Council (or if they are unable to meet, the Emergency Committee, a subset of the Council) for referral of a decision to the Cabinet.
- Upon the Council’s advice, the Cabinet declares a natural disaster.

Declarations must be broadcast on television and radio, and published in the national *Gazette*. Unless revoked earlier, a declaration remains in force for a maximum of 30 days.

**The Role of NGOs in Disaster Response**

The NDMA defines a non-government organisation as “a local body in the Fiji Islands whose function is to provide, administer and distribute such material and physical assistance as may be made available from non-government sources both within the Fiji Islands and from overseas, in response to a declared disaster.”

The NDMA makes several provisions for the role of NGOs in disaster response. In particular, it states that “the Government and recognized Non-Government Organizations shall provide disaster relief assistance during an emergency situation until the community has restored itself.”

The National Disaster Coordinator, under the direction of the National Disaster Controller, is tasked with advising and assisting NGOs on matters relating to disaster management activities. The NDMA also envisages that some NGOs (or “community organisations”) will further below. In this case, such NGOs are considered to be “agencies” under the NDMA and as a result are subordinate to the National Disaster Controller and are also subordinate to the Divisional and District Officers at those respective levels.

Further, it is stated that “Disaster relief assistance provided by Non-Government Organisations in a district shall be coordinated by the District Officer to avoid overlap and duplication.”

**Fiji Red Cross**

The Fiji Red Cross has a special status under the provisions of the NDMA. The Fiji Red Cross is the only NGO to be named a member of the National Disaster Management Council.
Fiji Red Cross has become, by law, a member of the authority “responsible for disaster management policy and operations.” The Fiji Red Cross therefore has the ability to provide formal input and advice into Fiji’s disaster management policy and operations as well as in response to specific disasters. Such input and advice could include topics such as the desirability of international assistance for disaster response and the necessity of streamlined and simplified import procedures and immigration to increase the speed of international assistance in response to large-scale emergency operations and declared disasters.

**INTERNATIONAL ASSISTANCE UNDER THE NDMA**

The NDMA provides that “The National Disaster Controller may request to the Minister of Foreign Affairs to call for foreign assistance in an emergency situation and the Controller and the Emergency Committee shall coordinate all foreign assistance provided as a result.”

It also states that “Non-Governmental Organisations may also request international assistance from their respective international organisations”.

In relation to international funding for disaster relief and rehabilitation, the NDMA states: “The Chairman of the Council, after consultation with the Council, shall advise the Cabinet of the funding requirement from overseas aid needed to cover the cost of disaster relief and rehabilitation if it is established that it is beyond the national capabilities to cope or if for any other cause he thinks fit to do so. Briefings of donors who respond to a request shall be done by the National Disaster Controller in liaison with the Ministry of Foreign Affairs.”

Thus the NDMA only briefly addresses international assistance, leaving more specific provisions to the NDMP, as discussed below.

The NDMA also makes provision for the development of further regulations by the Minister “for the better carrying out of the provision of this Act”.

**NATIONAL DISASTER MANAGEMENT PLAN**

Much of the detail on the organisation and conduct of disaster management in Fiji is determined by the NDMP. It provides the policy framework for:

- Disaster operations/emergency response
- Relief operations
- Rehabilitation / recovery
- Education, awareness and training
- Mitigation

Of particular relevance, the NDMP contains an appendix relating to “International Assistance”. The purpose of the appendix is to address the “main considerations which apply to international disaster assistance in Fiji. It outlines different types of assistance in relation to disasters, roles and responsibilities within the Government, international appeals for assistance and indicates the mechanisms for interaction between the Government and bilateral and multi-lateral donors.”

**DEPARTMENTAL DISASTER MANAGEMENT PLANNING**

Both the NDMA and the NDMP place great significance on the role of Disaster Response Liaison officers. Each ministry and other relevant departments must designate a Liaison Officer to be focal point with the NDMO and to coordinate their agencies’ actions in response to a disaster. According to the NDMP each agency has an internal disaster management plan that guides its actions for preparedness, response and development of ongoing programs.
REQUESTS FOR INTERNATIONAL ASSISTANCE

The NDMP Appendix F on “International Assistance” provides a number of basic principles for international assistance in natural disasters. These are as follows:

1. An appeal for international assistance, either to specific countries or a general appeal, is made by the Prime Minister on the basis of advice by the National Disaster Controller; international assistance will be sought when the impacts of the disaster go beyond the capabilities of the local and national resources to cope.

2. All disaster assistance is based upon a request from the government of Fiji or from a recognized NGO;

3. All government requests for international assistance are made by the National Disaster Controller through the Ministry of Foreign Affairs; Agencies will not directly request international assistance;

4. The disaster controller will be fully informed of international assistance provided to recognized NGOs.

Based upon these principles and the NDMA provisions referred to previously, international assistance following a disaster may be requested in three ways:

The first is from a recognized NGO to their respective international organization, provided that the Controller is notified. This form of assistance may be financial or in-kind services such as medical supplies, transportation or labor. There appears to be no restriction on the scope of disaster relief, such as supplies, numbers of personnel and cash, which can be provided in this way.

The second type of request is for “operational assistance during emergencies.” This is described by the NDMP as the “provision of aircraft support for survey and assessment and relief distribution, aerial photography, or the provision of emergency assistance teams to undertake specialist tasks such as search and rescue and emergency medicare.”

This type of assistance can be requested only by the National Disaster Controller through the Ministry of Foreign Affairs, in consultation with the Emergency Committee of the National Disaster Management Council, and is “normally” provided by countries in the region immediately after a disaster.

The third type of request is for “relief assistance”, which can consist of cash or relief supplies. Relief items are considered to include the following: “materials for temporary shelter, water containers, emergency equipment, food supplies, medical emergency kits and other materials used to provide relief to disaster victims.”

All requests for this type of assistance must also be made by the National Disaster Controller, through the Ministry of Foreign Affairs, after consultation with the Emergency Committee.

The NDMP specifically states, however, that “international assistance, other than to recognized NGO’s, cannot be given unless there is an official appeal for international assistance.”

Rather, the Government may make individual appeals, through diplomatic channels, to “specific countries with which Fiji has a close relation” or it may make a general appeal, which is communicated at a meeting attended by the diplomatic missions, UN agencies and regional organizations which are already present in the country.

OFFERS OF INTERNATIONAL ASSISTANCE

Given the above, the NDMA and NDMP define clearly whose international assistance the Government will accept, and even then, only after a formal request has been made. However, in the news reports and literature covering past disasters in Fiji, potential donors such as the members of the FRANZ Agreement do, in fact, spontaneously offer their assistance after a disaster, although they are careful to ask for a formal request for their assistance before providing it. This will be discussed further in Part III of this report on Practice and Experiences.
LEGAL STATUS OF ORGANISATIONS AND PERSONNEL PROVIDING ASSISTANCE

NON-GOVERNMENTAL ORGANIZATIONS

The NDMA specifically recognizes that NGOs have a role to play in Fiji’s national relief effort. Legally, NGOs are considered corporate bodies under Fiji law, and are usually registered in accordance with the Charitable Trusts Act or Religious Bodies Registration Act.

To register as a charitable trust, an organization must have a mission consistent with one of four “charitable purposes”, which includes “[t]he relief of distress caused by any disaster affecting the whole or any part of the community”. That certificate registers the trustees of the charity as a corporate body and therefore entitles the board of trustees to various property and contractual rights.

Religious NGOs can also potentially register through the Charitable Trusts Act provided they meet the relevant criteria, but they can also register in accordance with the Religious Bodies Registration Act, which similarly enables them, through their trustees, to have recognized legal status and hold land.

Although the measures outlined above are primarily intended for NGOs seeking to set up permanently in Fiji, it appears that the same requirements would also apply to NGOs only wishing to enter Fiji on a temporary basis for a specific emergency operation. However, in the event of a large natural disaster, some or all of the requirements for temporary delegations could be waived upon application to the appropriate Ministers.

INTERNATIONAL ORGANIZATIONS

Permanent delegations of international organisations are treated in a similar way to those of Governments. Under the Diplomatic Privileges and Immunities Act, organisations which receive a Ministerial declaration stating that it is an “organization of which two or more States or the Governments thereof are members,” are recognised as being an international organisation with corporate legal status. As such they are entitled to benefit from the privileges and immunities outlined in the various schedules of the Act.

According to the Government of Fiji, there are currently thirteen international and regional organizations accredited to Fiji. These organizations include:

- UNDP
- UN Disaster Management Programme
- UN Population Fund
- UN Children’s Fund
- International Labour Organization
- World Health Organization
- Food and Agricultural Organisation
- Pacific Island Forum Secretariat
- Secretariat of the Pacific Community
- SOPAC
- South Pacific Tourism Organisation
- International Federation of Red Cross and Red Crescent Societies
- International Committee of the Red Cross.

CUSTOMS AND TAXATION REQUIREMENTS FOR RELIEF GOODS, MEDICINES AND EQUIPMENT
In the absence of special arrangements with the Government of Fiji on customs and tax exemptions, import and export policy is made by the Department of Commerce and Industry, Ministry of Foreign Affairs and Trade. Imports may trigger tariff measures, import restrictions and quota arrangements. In the case of disaster relief, no prohibition or restrictions appear in the customs requirements for NGOs to import or export relief goods. Indeed, Section 10(1-3) of the *Customs Tariff (Amendment) Act of 2001* provides:

1. The Minister may after receiving recommendation to do so from the Controller and subject to such conditions as the Minister may consider necessary, reduce or refund the whole of part of fiscal duty paid or payable by a person or organisation in respect of goods imported into Fiji, if the Minister is satisfied that -
   a. the goods being imported or being imported as a relief in the event of a disaster declared by the Government as a national disaster;
   b. the importer of the goods is a person or organisation covered under any International Agreement or Convention between the respective Governments or Parties;
   c. the importer of the goods is a registered religious or charitable organisation and that any reduction or refund of such duty is, in the circumstances, justifiable having regard to the purpose for which the organisation was established;
   d. the reduction or refund of fiscal duty will contribute an identifiable benefit to the country.

2. Unless otherwise indicated by the Minister, the reduction or refund approved under Sec. (1)(d) shall remain in force for a period of 12 months after approval.

3. For the purposes of subsection (1)(d), the applicant for a concession must:
   - make application in writing to the Controller;
   - set out in the application the detail of the concession sought and its fiscal duty value; and
   - outline the benefit to the country that the concession sought and its fiscal duty value.

As a result, any organisation that has been certified as a charitable organisation, religious organisation or IO may apply to the Controller for a reduction or removal of customs duty. As long as the applicant can detail the concession sought, its value, and demonstrate a benefit to the country, customs duties will not be imposed.

Export of disaster relief goods will generally not trigger export taxes. Export taxes are generally imposed upon manufactured goods under an export-licensing scheme.

In the case of the importation of medicine, the Ministry of Health representative stated that medicines that may be required for disaster response and relief cannot be imported into Fiji without previous consultation with the World Health Organisation, which makes a determination of the medicines required and coordinates their shipment. So, while there may not be customs restrictions on the importation of medicine, there is a different consultation, screening and logistics process that must be followed prior to importation of medicines.

**Access to and costs of facilities**

No prohibitions or restrictions on access to facilities such as office space, warehousing, telecommunications networks, banking and vehicle registration appear to exist, nor do there appear to be differences in pricing for IOs and NGOs involved in disaster relief activities.

Vehicle registration must be paid by all workers with the exception of diplomats and is FD $35. A driver’s license from another country is valid for six months. After that a Fiji Drivers License must be obtained. A learner’s permit can be obtained for a small fee.124

With regards to telecommunications, it should be noted that telecommunication systems run by any foreign vessel or aircraft are specifically exempt from the Governmental licensing provisions of Section 6(2)(c), *Posts and Telecommunications Decree of 1989*. 
TRANSPORT AND MOVEMENT OF PERSONNEL AND RELIEF GOODS/EQUIPMENT WITHIN FIJI

There appear to be no restrictions on the transport and transit of personnel and/or relief goods and equipment related to disaster relief into and around Fiji by NGOs, IOs and Diplomatic Missions. Under the Fiji Fundamental Rights and Freedoms Decree No. 7 of 2000, citizens and non-residents have access to all parts of the country without restriction, however there are limited exceptions that are based upon the exigencies of public safety and emergencies.

As noted previously, IOs and Diplomatic Missions are able to directly import goods that are used for official missions and are exempt most from prohibitions and restrictions. However, there does not appear to be any statutory authority that gives priority to disaster relief organisations that may need to purchase and/or utilise equipment already in-country. Government personnel state that assistance will be provided to groups involved in disaster relief.

There is no legal restriction on those who may engage in shipping or who may use a shipping service or ferry. Regular commercial shipping is limited to the main routes and shipment to the outer islands is on an intermittent basis. However, there has been an increase in the number of private commercial ferry operators, and this has pushed commercial shipping rates down prompting claims from the shipping industry that the Government should regulate the number of ships and/or the prices of carriage.

The Fiji Government Shipping Service (GSS) has few ships available for transport of relief personnel and goods to the outer islands of Fiji. As foreign vessels and planes are often requested during the worst of disasters, the Government has acknowledged that it has insufficient numbers of vessels and the working conditions for officers and crew on Government vessels are poor.

INFORMATION SHARING

Under the NDMA, information is critical as it is the vehicle which engages the disaster management process and moves it forward. With increased information, the process is able to be engaged sooner, preparations can be carried out earlier and mitigation activities become more of an option. In a macro view, information sharing is (a) obtaining early warning information of hazards; (b) sharing that information with the Council members; (c) engaging their own internal processes; and (d) making timely decisions to request international assistance, if required.

The NDMA requires that the NDMO and the National Emergency Operations Centre be able to access any information that it needs during disaster response. Part of that process is bringing the information before the Emergency Committee and the Council and recommending an option to the Controller and the Cabinet. This process ensures that the various Government sectors including the Fiji Red Cross are notified. They can then begin to engage their own internal disaster management procedures and become part of the overall decision-making process. Further, Fiji is working on implementing a policy on Information Technology that allows for updating their telecommunications systems and integrating information sharing into their government processes.

PREPAREDNESS AND TRAINING

There are numerous on-going and planned programmes involving preparedness and training in the South Pacific countries including Fiji. Preparedness is one of the main aspects of Fiji’s disaster management scheme and is also one of the main aspects of the emergency response exercises between Fiji and both Australia and New Zealand, as described above. Generally however, the overall focus of disaster management training in the region has shifted from disaster response to disaster risk assessment, prevention and mitigation. The focus has also shifted towards an all-hazard, holistic treatment of disaster and hazard reduction. As part of this holistic treatment, there has also been a shift towards more community involvement in disaster preparedness and mitigation. While preparedness and response are still important, it is becoming viewed as being reactive instead of proactive.
The Pacific Emergency Management Training Advisory Group (PEMTAG) was created in 2002 to coordinate disaster management training in the region. PEMTAG is made up of representatives from: SOPAC; the International Federation of Red Cross and Red Crescent Societies; the OCHA Regional Disaster Response advisor; and OFDA. The primary goals of PEMTAG are to provide disaster management training, to develop country trainers and core training materials for use in the region, as well as other regional education and technical assistance.

Significant meteorological and hazard warning training is supported by SOPAC, the South Pacific Regional Economic Programme (SPREP), PDC and the South Pacific Community (SPC). At an international level, the World Meteorological Organization (WMO) is a key partner for technical assistance and training.

ACP training started in 2002 and focused on several key areas: hazard mitigation and risk assessment, availability of aggregates for construction and water resources and sanitation. The ACP training is also focused on developing appropriate policies, management plans and regulatory frameworks for these areas.

**OPERATIONAL ISSUES**

The timeliness of requests for outside assistance is still a challenge for fast and effective international disaster response in Fiji. The lack of standard assessment processes for determining when a disaster requires external assistance has meant that requests have been delayed for long periods. Geographic and infrastructure challenges also delay the communication about disasters, with many communities in isolated areas with limited access to telecommunications.

Even when information is available, communication is often delayed by protracted information management, cross-checking and verification of data. Whilst the need to have complete and accurate information was acknowledged, it was felt that in the early stages of a disaster, all available information needs to be transmitted as soon as possible, even if it changes at a later stage. In this regard, the NDMO and other relevant organizations should not feel they will be “judged” by the quality of the information, but rather they would be ensuring that all relevant agencies are notified of the potential need for assistance as soon as possible.

However it was widely acknowledged that one of the strengths of the system was the strong links between major donors. In particular there was said to be good coordination between the Government of Fiji and the permanent missions of the Australian, New Zealand and French governments (supported by the FRANZ Agreement). By comparison, in Pacific countries where there were no permanent missions or consulates, responses were reported to have been much slower.

Another strength, which was in fact a result of the isolation of many communities, was the strong resilience and resourcefulness of local populations. Because of the time and distance to reach remote islands affected by disaster, it was felt that greater emphasis could be placed on developing local capacities to enable them to cope in the intervening period before the arrival of assistance.

**LOGISTICS**

It was noted that during relief operations there was often a “fast-tracking” system put in place whereby relief goods could be expedited through customs, however these procedures were not being applied consistently and needed further clarification. Special arrangements were also in place for the arrival of aircraft under the FRANZ Agreement, regarded as an important feature which could possibly be extended to other organizations.