The Republic of Fiji
National Disaster Risk Reduction Policy
2018-2030

Votua Village, Ba, January 2009

The next disaster will strike when the memory of the last disaster has been forgotten. 《災害は忘れた頃にやって る》

By Torahiko Terada (Geophysicist)

Enacted on September 2018 ©2018

Acknowledgements:

The Government of Fiji expresses its deep appreciation to the Japan International Cooperation Agency (JICA) and the Geo-Science, Energy and Maritime Division of the Pacific Community (SPC-GEM) which provided technical support to the preparer and the DRR Policy Unit.

In addition, the Government of Fiji expresses gratitude to the United Nations Office for Disaster Risk Reduction (UNISDR), the Pacific Islands Forum Secretariat (PIFS) and Save the Children for preparing support.

Finally, the support of several cooperating organisations, such as the development partners, the Non- Government Organisations (NGOs) and the Government Agencies in Fiji, were essential during the consultations for formulating the policy.

Editorial Supervisor:
Ministry of Disaster Management and Meteorological Services, Government of Fiji

Preparer:
Masayuki Inoue, Expert in DRR, Japan International Cooperation Agency (JICA)

General Overview:
Anare Leweniqila, Director of National Disaster Management Office (NDMO), Government of Fiji
Sunia Y. Ratulevu, Principal Administration Officer, NDMO

DRR Policy Unit:
Viliame T. Tuimanu, NDMO
Prishika Nadan, NDMO
Iliseva Tuamoto Wong, NDMO

Photo Credit:
Department of Information, Ministry of Rural and Maritime Development (MORM), and Ministry of National Disaster Management and Meteorological Services (MODM), Government of Fiji

Publication:
Ministry of Disaster Management and Meteorological Services, Government of Fiji

Ministry of Infrastructure, Transport, Disaster Management & Meteorological Services

JICA

Foreword

Recently our nation has witnessed an increase in the number of disasters and experienced one of the most severe cyclones to affect Fiji, Tropical Cyclone Winston on February 2016.

A number of factors have increased our level of exposure and vulnerability to these disasters. These include the increase in number of people living in disaster-prone areas, environmental degradation, unsustainable development planning and rapid urbanisation, and perhaps most important, climate change.

Disasters have an enormous negative impact on the development of key sectors of our economy such as agriculture, infrastructure, housing, health, education and, critically, the environment.

In recognition of this challenge, member states of the United Nations adopted the Sendai Framework for Disaster Risk Reduction 2015-2030. The Sendai Framework focuses on the reduction of existing risk and, crucially, the prevention of new risks.

Overall, it aims to substantially reduce disaster risks and losses with regards to lives, livelihood and health and economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.

This National Disaster Risk Reduction Policy 2018-2030 is aligned to the Natural Disaster Management Act 1998, which governs disaster risk reduction in Fiji. The policy is a statement of intent from the government to ensure that a comprehensive and systematic approach to disaster risk reduction helps achieve poverty alleviation and sustainable development.

Disaster risk reduction is a priority for Fiji. It needs to be mainstreamed into all policies, plans and practices. Investment in disaster risk reduction measures enhances the resilience of communities. It also saves millions of dollars in avoided losses for national and local government as well as the private sector.

I am committed to supporting the implementation of this policy. I believe it will inspire actions at all levels of our country to build economic, social and environmental resilience, that will in turn reduce poverty.

I would like to acknowledge all those who have contributed to the development of this policy. Your input has been invaluable in the finalization of the National Disaster Risk Reduction Policy 2018-2030.

Honorable Minister Jone Usamate

Ministry of Disaster Management and Meteorological Services

Preface

Fiji's society, environment and economy are highly vulnerable to climate change and disaster risks. The devastating consequences of the Category 5 Tropical Cyclone Winston in February 2016, the strongest cyclone ever to strike Fiji, affected over sixty percent of the country's population.

It destroyed communities, caused widespread damage to public infrastructure, schools and health facilities, and damaged or destroyed more than 40,000 houses over two days. The predicted increases in extreme weather from climate change means that the nation can expect to face even greater negative impacts in the future.

Fiji is currently undergoing policy and institutional reforms. It involves the updating of existing legislation and policies as well as the development of new ones. The National Disaster Risk Reduction Policy 2018-2030 aims to underpin sustainable economic and social development that improves livelihood in communities across Fiji.

The policy promotes good disaster risk governance, emphasizes the need for better risk assessment, establishes clear priorities for future action, and highlights the importance of monitoring action. It builds on Fiji's existing systems and cultural heritage. It is designed to make the most of past experiences and lessons learnt in order to better inform planning and adaptation of good practices for disaster risk reduction.

Coordination and communication at all levels of government, across key sectors and communities, is required to effectively implement this policy. As part of the country's transition towards decentralization, provincial authorities and municipal councils, in particular, will play key roles.

The policy promotes active participation and engagement of all groups in society, recognizing their different priorities, skills and knowledge in addressing climate change and disaster risk reduction. Women and vulnerable groups, including the elderly, persons with disabilities and young people will share in planning, decision-making and community action.

The adoption of this policy is part of the overall effort to ensure that the country's key strategies are transparently presented to all stakeholders, including the communities we serve, international donors and agencies.

In summary, the Republic of Fiji National Disaster Risk Reduction Policy 2018-2030 places Fiji at the forefront of implementing innovative and coherent approaches to sustainable and resilient development in the Pacific and internationally.

Permanent Secretary Taitusi Vakadravuyaca

Ministry of Disaster Management and Meteorological Services

Table of Contents

Part-1 Policy

Table of Contents

Part-2 Annex

Success Story

Part-1 Policy

Vanuabalavu Lau, November 2016

1. Policy Objective

1. **The overall objective of the National Disaster Risk Reduction Policy 2018-2030[1] is to enable Fiji to deliver on its priority of preventing new disaster risk and reducing existing disaster risk in line with relevant regional and global frameworks.**

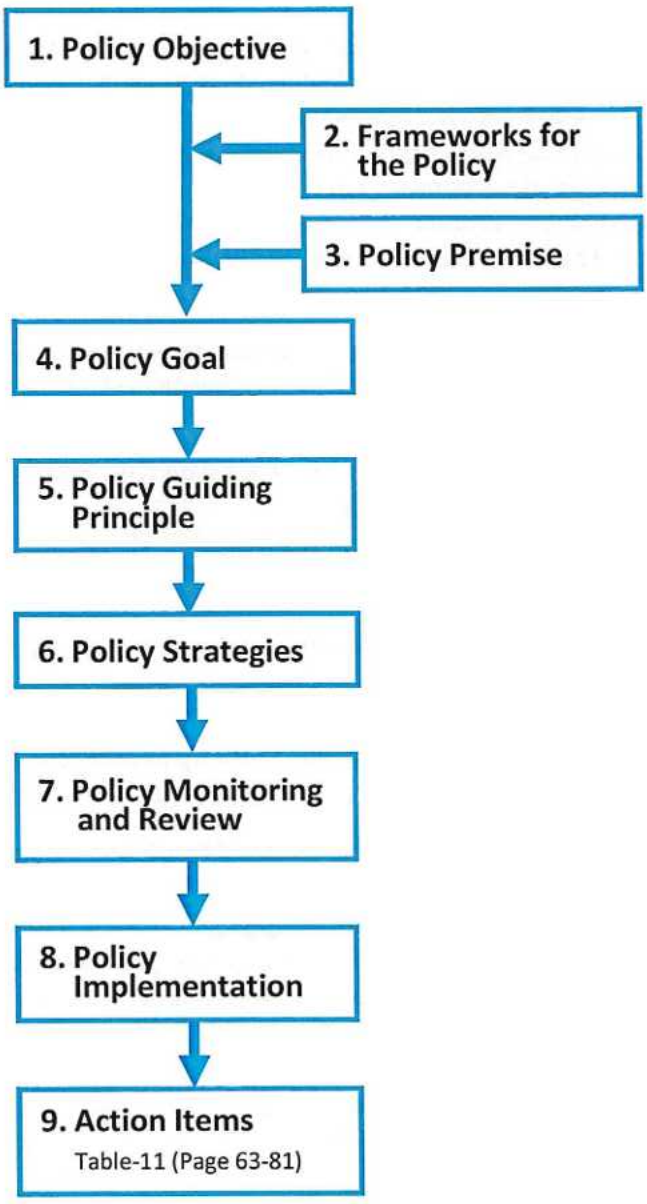


Fig.1 Formation Flow of the National Disaster Risk Reduction Policy 2018-2030

[1] The policy (NDRRP) is based on the disaster risk governance scheme for Fiji on 1st August 2018.

2. Frameworks for the Policy

2.1 Global Frameworks

Global Framework

2. At the global level, the relevant frameworks are the: Sustainable Development Agenda 2015-2030; Sendai Framework for Disaster Risk Reduction 2015-2030; Paris Agreement on Climate Change 2015; Small Islands Developing States Accelerated Modalities of Action (S.A.M.O.A) Pathway 2014; Addis Ababa Accord 2015; Agenda for Humanity 2016; and Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) 1979.

Sustainable Development Goals and Sendai Framework

3. The Agenda for Sustainable Development highlights the need for DRR to be mainstreamed across a number of sectors. This is in line with the understanding that DRR is a cross-cutting issue and requires a multi-sectoral approach. The outcome document of the Sustainable Development Goals (SDGs) says that the SDGs are unattainable without addressing the exposure and vulnerabilities of the poor. In concert with the SDGs, the Sendai Framework calls for the mainstreaming of DRR in different sectors' sustainable development plans, policies and practices and mechanisms.

Outcome of Sendai Framework

4. The Sendai Framework aims to achieve the following outcome over the next 15 years:

The substantial reduction of disaster risk and losses in lives, livelihood and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.

Goal of Sendai Framework

5. To attain the expected outcome, the following goal must be pursued:

Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.

Areas of Sendai Framework

6. The Sendai Framework emphasizes the following three areas, based on the 10-year experience of the Hyogo Framework for Action 2005-2015:

i) Collaboration between the national government and various actors;

ii) Investment in DRR from the long-term perspective; and

iii) Build Back Better (BBB)[2].

Priorities for Action of Sendai Framework

7. The Sendai Framework highlights four Priorities for Action[3]:

i) Understanding disaster risk;

[2] Refer to "Annex-11: Glossary"

[3] Refer to "Table-13 in Annex-2: Global Targets of the Sendai Framework".

ii) Disaster risk governance to manage disaster risks
iii) Investing in DRR for resilience; and
iv) Enhancing disaster preparedness for effective response and to BBB.

Global Indicators of the Sendai Framework

8. To assess the progress of the Sendai Framework, seven targets have been agreed upon to be evaluated via 38 global indicators (Fig.2).

Indicators of Government of Fiji

9. The Sendai Framework is a voluntary and non-binding agreement which recognises the State as having the primary role to DRR. DRR is a priority for Fiji. As such, the Fiji Government, based on this direction, will take rapid and accurate measures to reduce disaster risks to ensure that the indicators of the Sendai Framework are achieved by the year 2030.

National Disaster Risk Reduction Policy 2018-2030

10. Fiji will reflect the Priorities for Action of the Sendai Framework in the National Disaster Risk Reduction Policy 2018-2030 (hereinafter referred to as NDRRP) to show areas of commonalities and where better synergies can be achieved.

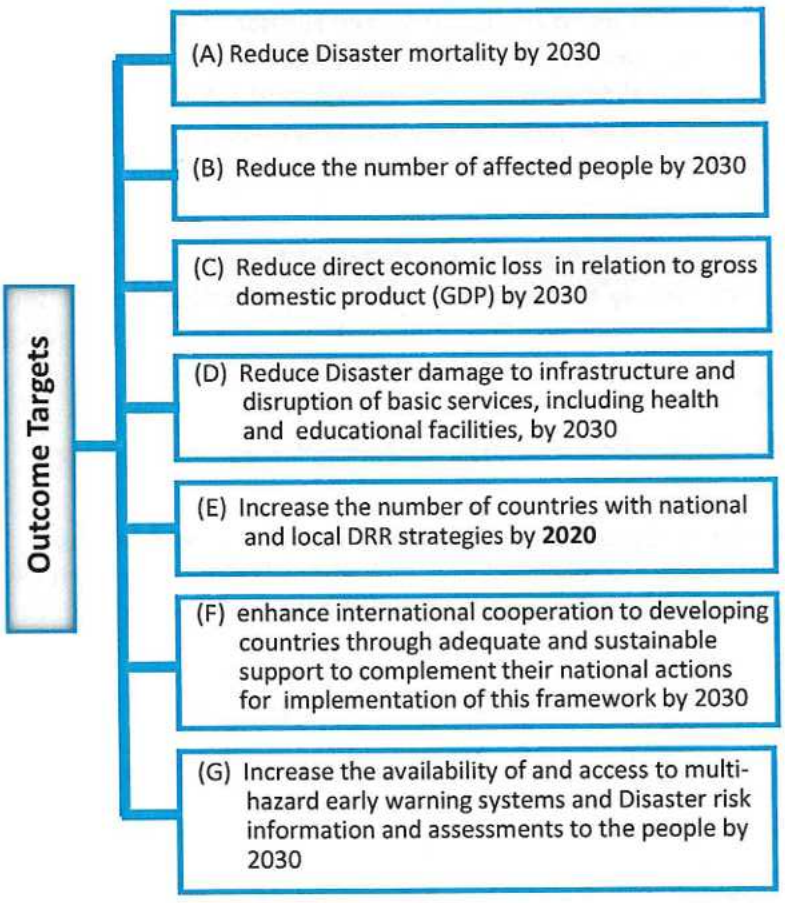


Fig.2 Global Targets for the Sendai Framework

2.2 Regional Frameworks

Framework for Resilient Development in the Pacific

11. In 2016, the Framework for Resilient Development in the Pacific (FRDP) was established as the regional architecture to provide guidance on more effective and coherent action in terms of three inter-related goals:

i) Strengthened integrated adaptation and risk reduction to enhance resilience to climate change and disaster;

ii) Low-carbon development; and

iii) Strengthened disaster preparedness, response and recovery.

Relationship between FRDP and Sendai Framework

12. The monitoring, evaluation and reporting framework of the FRDP will utilize existing reporting commitments under the Sendai Framework, the Paris Agreement for Climate Change and the SDGs. Pacific FRDP Goal 1 is linked to the Sendai Framework Priority Areas 1, 2 and 3 and FRDP Goal 3 is linked to the Sendai Framework Priority Area 4, respectively.

Requirement from FRDP

13. Under the FRDP, Pacific Islands Countries and Territories (PICTs) are required to embed climate change and disaster resilience initiatives within national and subnational sustainable development strategies, social development plans, sector plans, practices and resource mobilization. Where possible they should consider using integrated approaches as means of implementation.

Pacific Framework for the Rights of Persons with Disabilities 2016-2025

14. The new Pacific Framework for the Rights of Persons with Disabilities 2016-2025 strategy is constituted by five main goals. Goal 4 is directly linked to the FRDP, which supports the need of persons with Disabilities to be considered in DRR strategies.

2.3 Fiji's Development-Related Frameworks

Constitution and Green Growth Framework as National Frameworks

15. It is crucial for the NDRRP to be based on both the "Constitution of the Republic of Fiji, 2013" and the "Green Growth Framework, 2014" as the overall guiding documents.

Acts and Policies concerning NDRRP

16. In addition to the guiding documents, the following acts, policies and plans were considered in formulating the NDRRP:

- Public Health Act, 1935;
- Town Planning Act, 1946;
- Education Act, 1966;
- Local Government Act, 1972;
- Natural Disaster Management Act, 1998 (NDMA);
- Environment Management Act, 2005;

- Human Rights and Anti-Discrimination Commission Act, 2009;
- Land Use Act, 2010
;
- Roadmap for Sustainable and Economic Development, 2010;
- National Climate Change Policy, 2012;
- Draft Climate Change Relocation Policy, 2016;
- National Humanitarian Policy, 2017; and
- 5-Year and 20-Year National Development Plan, 2017.

2.4 Fiji's National Disaster Management Legislation Framework

Natural Disaster Management Act

17. The NDMA was enacted in 1998, introducing the concept of 'Natural Disaster Management'. Fiji has addressed disaster response as a functional role under the NDMA. It is appropriate for concept of disaster management (detailed in Table-1) to have a stronger disaster risk reduction component. This provides the basis to review the NDMA and the National Disaster Management Plan 1995 (NDMP).

Purpose for Reviewing NDMA

18. One of the main purposes of the review of the NDMA is to develop a way forward to overcome the overlapping roles in administrative boundaries and to create a stronger sense of shared responsibility for DRR in Fiji. It is therefore proposed[4] to:

- Include in the new NDMA some important issues[5], such as human-induced/technological hazards, gender, disability, climate change and clusters.
- Include a more appropriate purpose that is relevant to disaster management processes in Fiji;
- Provide policy oversight of national disaster risk reduction and disaster management initiative;
- Require the NDMO to regularly monitor, audit, review and report on the implementation of the agreement in collaboration with the implementing and supporting agencies to ensure effective and timely implementation and use the monitoring and review results to address under performance and improve future DRR effort;
- Provide national disaster machinery in terms of assigning overall responsibility for the management of both natural and human-induced/technological hazards;
- Stipulate the overall coordination of relevant government agencies in terms of a comprehensive and integrated disaster management and the new role of the local governments under the jurisdiction of the Ministry of Local Government, Housing and Community Development (MOLG);

[4] Used "JICA 2017: Review of the National Disaster Management Act for Fiji, 2017" as a reference

[5] Cited from "UNISDR 2014: Ten Year Review on Progress Towards and Contributions Made by the pacific Region to the Hyogo Framework for Action (HFA) from 2005-2015"

- Refer to the obligation for residents' disaster preparedness and participation in spontaneous non-structural measures on DRR;
- Highlight which level of local government should have its own DRR plan;
- Place more emphasis on the roles of the Republic of Fiji Military Forces (RFMF), the Fiji Police Force (FPF), the National Fire Authority (NFA), the Fiji Correction Service (FCS) as key players of the disaster management considering the importance of their respective roles in search and rescue, relief and preservation of social order during emergency situations in Fiji;
- Stipulate to whom will the authority for instructing evacuation, setting up caution zones and evacuation centres;
- Develop a list of residents in need of assistance during an evacuation as one of disaster preparedness activities;
- Review the roles required to fulfil the responsibility of disaster emergency response based on past activities;
- Stipulate who is the responsible person who may issue warnings of evacuation and other information to residents;
- Review who is responsible for recovery and/or reconstruction based on past activities;
- Propose the introduction of financing measures such as disaster insurance in Fiji; and
- Develop a guideline for the Fiji Cluster System[6] as a coordination mechanism for foreign assistance in case of a national disaster.

Table-1 Development of Central Concept about Disaster Management

Momentum Event	Year	Appeal for Implementation	Central Concept
East Pakistan Cyclone (Number of deaths: 300,000-500,000)	1970	The concept of 'Preventive Medicine' should be well adopted into Disaster Management.	**Disaster Management**
First World Conference on Disaster Reduction in Yokohama	1994	Yokohama Strategy and Plan of Action	**Natural Disaster Reduction**
Second World Conference on Disaster Reduction in Kobe	2005	Hyogo Framework for Action	**Disaster Reduction**
Third World Conference on Disaster Risk Reduction in Sendai	2015	Sendai Framework for Disaster Risk Reduction	**Disaster Risk Reduction (DRR)**

[6] Refer to "Annex-3(3): Fiji Cluster System"

2.5 Fiji's National Disaster Management Institutional Framework

Consistency among Administrative Arrangements

19. It is crucial to ensure that there are robust linkages to key agencies for maintaining consistency in the administration arrangements for DRR. Without consistency among administrative arrangements, as a general rule, governance in DRR would not be effective, allowing duplication of activities, delaying required actions, ineffective administrative activities, inappropriate activities and so forth.

Dual-Administrative System

20. Therefore, there is a need to resolve the dual-administrative system regarding DRR within the Ministry of Rural and Maritime Development (MORM), the Ministry of Disaster Management and Meteorological Services (MODM), and the Ministry of Local Government, Housing and Community Development (MOLG).

MOLG and Local Governments as Liaison Agencies under NDMA

21. In reality, the disaster management process is constructed by using the administrative arrangements of the MORM and the MODM, while the local governments composed of two (2) cities and eleven (11) towns under the jurisdiction of the MOLG are not clearly embedded in the scheme (Fig.3)[7]. It is therefore difficult for all the departments and agencies of the MOLG and the local governments to function efficiently as liaison agencies under the NDMA.

Jurisdiction of MOLG

22. It may be disadvantageous if the local governments under the jurisdiction of the MOLG are excluded from the administrative arrangements for DRR under the jurisdiction of the MORM and the MODM. Local governments constitute a considerable part of supervisory areas and population at local and community levels. However, a definition of the role of local government cannot be found clearly in the NDMA, except for the emergency response stage.

New NDMA

23. It is therefore proposed to stipulate in the new NDMA the roles and responsibility of local governments under the jurisdiction of the MOLG and assign a clear role with regard to disaster management in Fiji.

Flood in Nadi Town, April 2012

[7] Modified from "SOPs: Standard Operation Procedures, 2010"

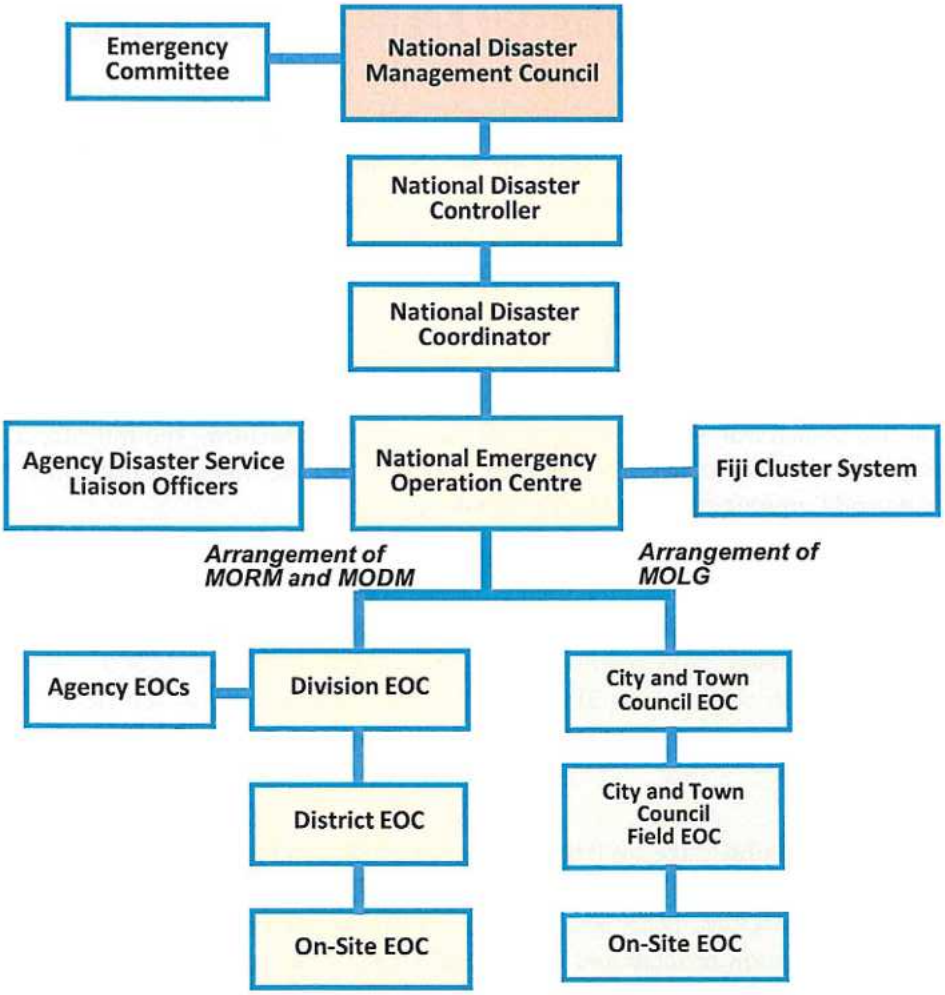


Fig.3 Disaster Machinery in terms of National Disaster/Emergency

Landslide in Qamea, January 2017

2.6 Fiji's Policy Formation Framework

Imbalance among Levels of Agendas

24. DRR plays a crucial role in sustainable development and poverty alleviation. In order to reduce disaster risks, it is essential that coherence should be maintained throughout the related agenda for sustainable development and poverty alleviation, economic growth, food security, health and safety, environmental management, disaster displacement/relocation[8], CCA and DRR. An imbalance among the levels of these agendas may result in the deterioration of the total level of the efficiency.

Formation Flow of NDRRP

25. Fig.4 illustrates the relevant global and regional frameworks, development schemes and relevant laws in Fiji used in the development of the NDRRP. It also shows the formation background and how it is reflected in the NDRRP.

Success Story #1

Fiji as a Sendai Framework Mortality Reduction Champion

Mr. Robert Glasser (UNISDR President) and Hon Minister Inia Seruiratu

At the Pacific Resilience Week 2016 Joint Press Conference on 25 October 2016, Mr. Robert Glasser (UNISDR President) awarded Fiji a certificate recognizing it as a *Sendai Framework Mortality Reduction Champion*. The award acknowledges Fiji's efforts to reduce mortality from natural hazards and disasters as demonstrated by the lower-than-expected mortality rate from Tropical Cyclone Winston (February 2016), the strongest cyclone on record to make landfall in Fiji.

[8] Disaster displacement/relocation and DRR are put together by the Platform on Disaster Displacement (PDD) in 2017 for the Global Platform for DRR; Refer to "Annex-11: Glossary"

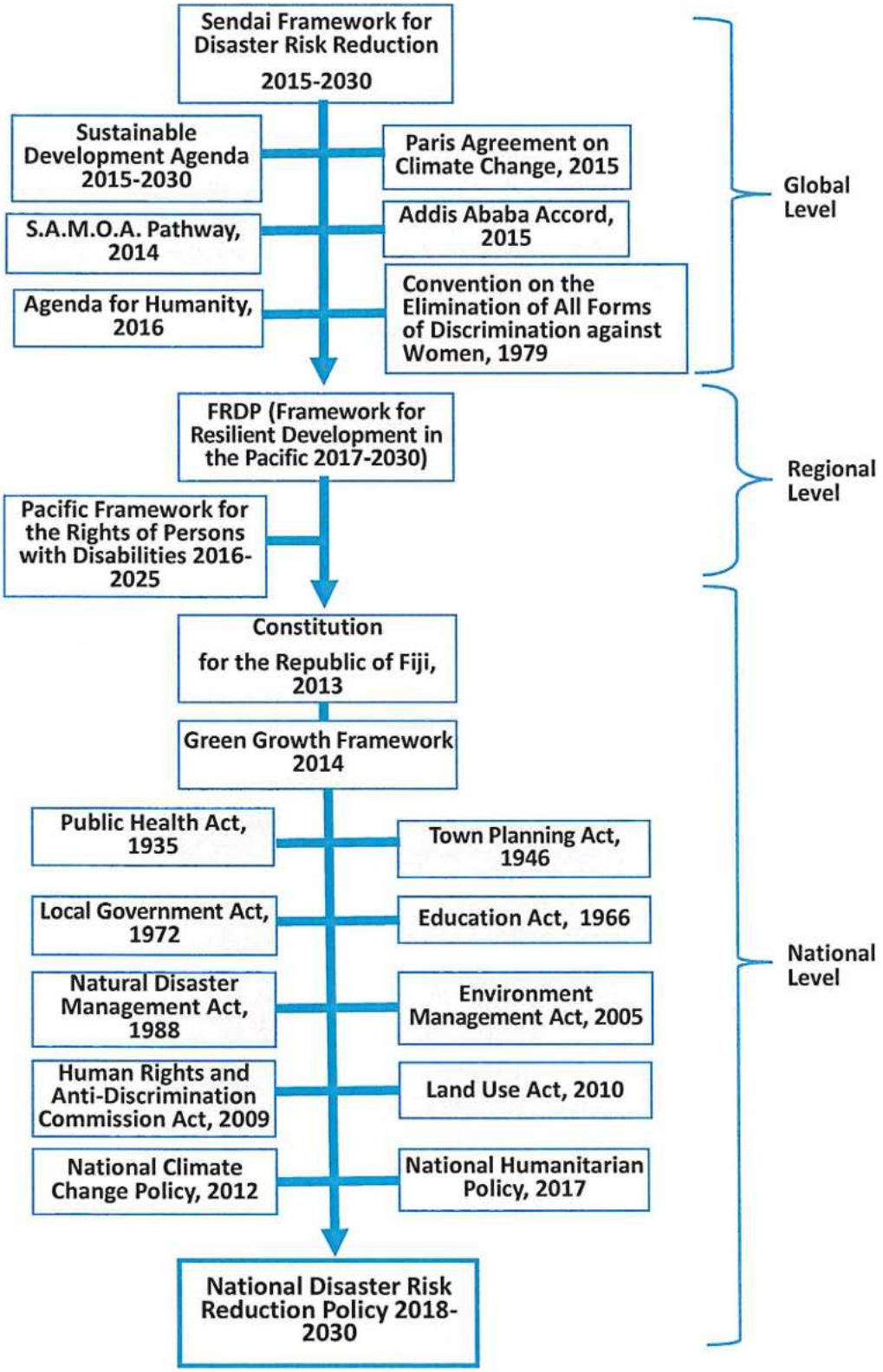


Fig.4 Formation Background of National Disaster Risk Reduction Policy 2018-2030

3. Policy Premise

DRR and Coping Capacity

26. It would be the fundamental recognition of DRR that the insufficiency of the wealth of a nation or overall society, hierarchical disparity, regional disparity and uneven distribution of wealth result in the skewed distribution of the coping capacity[9], or the resilience[10], and that when such a society is exposed to hazards, heavy damage disparity would also occur in the society. Therefore, equity would be the goal of Fiji development policies as well as the target of the measures for DRR in a wider sense.

Climate Change and Disaster Risk

27. Addressing climate change as one of the drivers of DRR, while respecting the mandate of the Paris Agreement on Climate Change, represents an opportunity to reduce disaster risk in a meaningful and coherent manner throughout the inter-related intergovernmental processes.

Classification of Hazards

28. Table 2 summarises the classification of hazards for the NDRRP, which expediently excludes political hazards such as civil unrest, terrorism and war from this policy.

Table-2 Classification of Hazards for the National Disaster Risk Reduction Policy

Hazard Grouping[11]		Hazard Item	Remark
Natural Hazard	Climatological Hazard (Climate Change)	Rising temperature; changing frequency and intensity of tropical cyclone, flood and drought; sea level rise; coastal erosion; and accelerated ecosystem degradation (bleached coral reefs, salted water intrusion, etc.)	Included in the NDRRP
	Hydro-Meteorological Hazard	Cyclone, storm wind, heavy rain, flood (including flash flood and inland flood), storm surge, landslide[12]	
	Geological/Geophysical Hazard	Earthquake, tsunami, volcanic eruption, landslide[12]	
	Biological Hazard	Epidemic and/or widespread outbreak of contagious disease, unknown disease outbreak, epidemic	
Non-Natural Hazard	Human-Induced /Technological Hazard[13]	Environmental contamination by rubbish/polluted water, oil spill, chemical leak, big industrial fire, major traffic accident, cruise ship accident, CO_2 emission, electrical shock, forest fire	
	Political Hazard	Civil unrest, terrorism, war	Excluded from the NDRRP

[9] Refer to "Annex-1: Coping Capacity and Disaster Risk"

[10] Refer to "Annex-11: Glossary"

[11] Refer to "UNISDR Terminology 216: Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction, December 2016".

[12] The landslide as a hydro-meteorological item and the one as a geological/geophysical item are different from the generation mechanism.

[13] Human-induced/technological hazard might be one of major causes of secondary impact of disaster. For example, damage to chemical facilities by the initial disaster may cause spill of hazardous materials which pose a threat to human health and lives.

3.1 Characteristics of Climate Change and Disaster Risks in Fiji

Country Assessment for Fiji

29. According to the country assessment for Fiji conducted by the World Bank[14], it is concluded that the climatological, hydro-meteorological and geological/geophysical pressures raise concerns on risk reduction. The assessment findings can be summarised as follows:

- Fiji has an inherently high potential of exposure to a considerable array of disasters. The probability of catastrophic damage and loss of life from hazards such as cyclone and tropical storm, storm surge, flooding and landslide, earthquake and tsunami, is assessed as very high;
- Fiji is extremely vulnerable to natural and human-induced/technological hazards. Overall, the associated risk appears to be increasing due to population pressures, poorly regulated land resources and climate change;
- Human-induced/technological hazards increase the impacts of cyclonic and tropical storm events and geological (including seismic) activities. The impacts result from poorly planned and developed urban and peri-urban areas, vulnerable tourist facilities and infrastructure, unstable economic development processes and activities, and inadequately resourced disaster response mechanisms;
- Lack of preparation against natural and human-induced/technological hazards increases the underlying risks. While core hazards and risks have been identified and priority issues are known, they are not integrated into national and sector plans and policies; and
- The ability to manage population growth in certain areas, land use, maintenance of infrastructure and protection of environment are severely undermined by institutional constraints, including professional and technical capacities of government agencies.

Disaster Risk Categories in Fiji

30. Disaster risks[15] including climate change cannot be simply defined a priori, as they require that the relationship among hazards, exposure, vulnerability and coping capacity be determined. Therefore, in considering the characteristics of disasters in Fiji, disaster risks have been classified into the categories shown in Table 3. Going forward, Fiji will need to develop DRR measures in line with these disaster risk categories.

Disaster Risk- ICategory (Large-Scale Disaster Risk)

31. If Fiji is to address hazards in a cost-efficient manner, it must preferentially select and implement countermeasures in the Disaster Risk-I category (those that demand large-scale structural measures) in the urban areas. However, in the case of structural measures, rolling out Disaster Risk-I items to target rural areas would cause significant problems in terms of cost effectiveness, so Fiji has been forced to abandon this idea from a practical standpoint.

[14] Used "World Bank 2008: Reducing the Risk of Disasters and Climate Variability in the Pacific Islands, 2008" as a reference

[15] Refer to "Annex-1: Coping Capacity and Disaster Risk".

Disaster Risk-ⅡCategory (Small-Scale Disaster Risk)

32. The repeated small-scale disasters and slow-onset disasters that occur in the Disaster Risk-II category tend to have a particularly large impact on community households and small and medium-sized enterprises (SMEs). This represents a large percentage of the loss across Fiji as a whole, so ideally, structural measures to cope with these risks should be actively rolled out not only in urban areas, but in rural areas as well.

Disaster Risk-ⅢCategory (Earthquake and/or Tsunami Disaster Risk)

33. By their very nature, the earthquake and tsunami risks listed in the Disaster Risk-III category demand both structural and non-structural measures. However, because implementing these structural measures[16] would require massive amounts of funding, it cannot be considered practical from a viewpoint of economic rationality. For this reason, structural measures to address earthquakes and tsunamis are flagged as issues to be dealt with in the near future, and the country will limit itself to implementing non-structural measures to cope with these risks for the time being.

Table-3 Disaster Risk Categories in Fiji

Disaster Risk Category	Targeted Hazard	Targeted Disaster
Disaster Risk- Ⅰ	High occurrence and relatively strong impact	Large river flood, Storm wind, Large-scale landslide
Disaster Risk- Ⅱ	High occurrence and relatively-small impact	Small-and-medium-sized river flood including inland flood, Small-scale landslide, Coastal erosion, Storm surge, Drought
Disaster Risk-Ⅲ	Low occurrence and strong impact	Huge earthquake, Tsunami

Rations Arrive in Central Division, March 2016

[16] Earthquake-proofing constructions such as schools, hospitals, etc., is regarded as an exception to the structural measures in the Disaster Risk-Ⅲ

3.2 Sectoral Implications of Climate Change and Disaster in Fiji

Heavily Impacted Social Systems

34. Specific types of infrastructure and public facilities are not the only sectors susceptible to disaster risks including climate change. If Fiji experiences a major hazard event, nearly all social systems will be heavily impacted. This is clear when looking at the damage resulting from Tropical Cyclone Winston in 2016 or at the damage evaluation result[17] from Tropical Cyclone Ami in 2003.

Projected or Potential Disaster Risk Impacts

35. Table 25 in Annex 10 provides a summary of the projected and potential disaster risks impacts as they affect particular sectors. In addition to the impacts, the key areas through which the sectors can contribute to DRR measures are outlined.

Background of External Environments

36. The DRR measures should take place against the background of the external environments[18], such as:

- Geographic extent of an island nation that makes communications and disaster response difficult;
- Topographic variability with low-lying coastal areas and atolls that are susceptible to overtopping by storm surge and considerable areas of steep hills and mountains that are over-cleared, geologically unstable and susceptible to landslide;
- Diverse terrestrial and marine ecosystems that offer diverse habitats and ecosystem services, for example, related to mangroves and coral reefs that provide some coastal protection from storm surge and tsunami;
- Fresh-water resources that are at high risk of/from over-use, contamination and drought;
- High population density in coastal areas of Viti Levu (for example, Suva), as well as the coral coasts and low islands that have been developed for tourist resort;
- Socio-economic disparity is a considerable part of the rural and low-lying island populations and informal settlement at subsistence levels; and
- Primary industry-based economy is vulnerable to drought, flood and global market influence.

[17] See "Table-19 in Annex-7: Disaster Risks in Fiji"
[18] Cited from "World Bank 2008: Reducing the Risk of Disasters and Climate Variability in the Pacific Islands, 2008".

3.3 Constrained Conditions to Implementation of Climate Change Adaptation and Disaster Risk Reduction

Coping Capacity of Social System

37. The fundamental characteristics of CCA/DRR is to reinforce the coping capacity, or the resilience, of a social system in disaster-prone areas; thus, it is necessary to prevent the expansion of the root causes of the social vulnerability against climate change and disaster to reduce disaster risks. In other words, it is necessary to focus on the social coping capacity against disasters, to analyse the reality of the coping capacity, to eliminate the underlying disaster risk factors of the vulnerability of a society such as poverty and inequity, and to minimise the damage. These lead to the elimination of constrained conditions of development and the progress of sustainable development.

Opportunities to Access Available Sources

38. Reducing the vulnerability of a society means to extend the opportunities to access available resources—e.g., human resources, material resources, information resources and human relations resources—as much as possible, which leads to enhance the level of the vulnerable groups[19] in a society. It is not until such extension of access is attained that a safer society is established.

New Breed of Disasters

39. In addition to human-induced and technological hazards, risk-sensitive investments and/or large-scale development could give birth to a new breed of disasters. Before these disasters strike, it is necessary to foster disaster-management environment tha utilises risk information and leverages existing plans and regulations, such as the environment impact assessment (EIA), land use planning, urban planning, etc., and to set them in disaster risk governance and DRR measures.

Major Constraints towards Addressing Climate Change and Disaster Risk Issues in Fiji

40. Strategic approaches to coping to climate change and disaster risk are necessary for a sustainable economic growth and social development. It is imperative that Fiji address CCA/DRR constraints and issues that would hinder such growth. The following (Paragraphs from #41 to #50) [20] [21] [22] are major constraints towards addressing climate change and disaster risk issues in Fiji.

41. ***Underlying Disaster Risk Factors***

- Poverty
- Hunger
- Disease/pandemic
- Conflict
- Inadequate health services

[19] Refer to "Annex-11: Glossary"
[20] Used part of "UNISDR, 2012: Chair's summary"
[21] Used part of "The Republic of Fiji National Climate Change Policy 2012"
[22] Used part of "UNISDR, 2014: Ten-Year Review on Progress Towards and Contributions Made by the Pacific Region to the HFA from 2005-2015"

- Inadequate education
- Inadequate infrastructure
- Poor water and sanitation
- Poor housing
- Unemployment
- Land and environment degradation
- Gender violence
- Gender discrimination

42. ***Impediments of Institutional Framework***

- Uncoordinated and highly sectoral development and implementation of CCA/DRR projects, and weak collaboration amongst government bodies, NGOs and private sectors.
- Lack of supporting and financing for DRR unit to effectively fulfil its role.
- Lack of integration of CCA/DRR issues into sectoral planning and budgeting process.
- Lack of a national repository for climate change and disaster risk information.
- Inconsistency in methodologies and standards used by various agencies when collecting and analysing CCA/DRR-related data and information.
- Lack of an efficient early warning system (EWS) to inform the public about extreme events.

43. ***Impediments of Supporting Legislation***

- Existing legislation and sectoral policies do not adequately consider CCA/DRR issues.
- Lack of effective enforcement of environment and resource management legislation to support CCA and DRR.

44. ***Impediments of National Planning***

- Inadequate consideration of climate change and disaster risk issues into land-use plans, urban and rural plans, coastal zone plans and infrastructure plans.
- Uncontrolled and unregulated clearing of marginal and vulnerable terrestrial areas has reduced the diversity/health of the ecosystem.
- Ageing and poorly maintained service utilities and infrastructure that cannot cope with existing demands will be put under further pressure due to hazards including climate change.
- Lack of effective involvement of communities in planning and decision-making on DRR.
- Lack of roles of women in DRR.

45. ***Impediments of Governance***

Potential governance deficits[23] in decision-making on risk reduction strategy are as follows:

- Lack of demarcation of responsibilities between different agencies.
- Lack of responsibility—No entity is legally responsible for failure; disaster risk governance and regulations may 'fall between the cracks'.

[23] Cited from "International Risk Governance Council 2009: Report on Risk Governance Deficits"

- Lack of accountability—Decision-makers are isolated from the impact of their decision.
- Unsustainability—e.g. short-term decisions lead to future long-term problems.
- Short-term expediency as a response to public pressure—Authority makes a decision on a knee-jerk or ad hoc basis.
- Indecision/lack of timeliness—Delay or inaction make matters worse.
- Inequity—Decisions allot the risks and benefits unfairly.

46. *Impediments of Coordination in DRR*

The NDMO is designated as the main focal point for coordinating DRR in the NDMA.

However, the following coordination deficits are indicated repeatedly: insufficient coordination in DRR between the NDMO and the relevant organisations such as the local governments, civil society organisations, multilateral stakeholders and communities, the international aid organisations, regional alliances and donors.

Coordination mechanisms in DRR between existing programmes and projects are not existed sufficiently.

47. *Impediments of Human Resources*

- Lack of capacities at all levels.
- Lack of personnel with relevant expertise on sectoral climate change and disaster risk issues in the government.
- Lack of recognition of the relevance of CCA/DRR expertise in established positions of government sectors.
- Inability of sectors to retain, support and develop skilled personnel.
- Lack of core financing to support and sustain established CCA/DRR personnel in government sectors.

48. *Impediment of Awareness and Training*

- Poor understanding of DRR concepts such as the effective implementation of DRR measures and the mainstreaming of DRR into development plans and programmes.
- Lack of sound information for decision-making on DRR—on critical issues such as: hazard risk mapping; risk assessment for priority hazards; consistent methodologies and data frameworks; cost and benefit of DRR; and vulnerability and capability across the social, economic, cultural and natural environment.
- Lack of public awareness and understanding on climate change and disaster risk and their impacts, which hinders the development and effective implementation of appropriate DRR measures.
- Poor access to the information available to stakeholders outside of the government: the private sector; civil societies; and communities.
- Lack of sharing of information between different sectoral agencies at the national level and local governments.

49. ***Impediments of Education***

- Inadequate reviewing and updating of CCA/DRR-related content in school curricula and technical, vocational and teaching courses.
- Inadequate school disaster management programmes.
- Lack of high-level education in CCA/DRR.

50. ***Disparity among People***

- Economic disparity between rich and poor.
- Regional disparity between persons living in urban and rural areas.
- Vulnerability disparity between living in and out of disaster-prone areas.
- Gender and age disparity.
- Disparity between persons with and without disabilities.
- Information Disparity between persons with and without information gadgets.
- Communication Disparity between persons with and without communication tools.
- Awareness disparity between persons with and without DRR trainings and/or drills.

Success Story #2

Traditional Fijian *Bure* Resilient to Strong Wind with Category 5 of Tropical Cyclone Winston

Nawaqarua Village, Ba, March 2017

Traditional *bure* is still built in some villages and settlements across Fiji and have been proven to withstand strong cyclones. A good example can be observed in Navala Village in the Ba Province, where all the buildings are traditional *bure*.

It has been found that in more cyclone-prone areas, traditional houses are particularly well-adapted to cope with cyclone hazards. Traditional housing in the Pacific is also well-adapted to cope with earthquakes because of their ductility, or ability to bend and sway without collapse. Therefore, it is important to maintain traditional coping mechanisms like the traditional *bure* as a means of mitigating disasters.

Old traditions die hard.

4. Policy Goal

51. **Stronger disaster risk governance and disaster risk reduction measures support poverty alleviation as part of the overall national effort towards sustainable and resilient development.**

Success Story #3

The Fijian Presidency of the Twenty-Third Conference of the Parties (COP23)

COP23, November 2017

Prime Minister and COP23 President Voreqe Bainimarama hailed the COP23 meeting as a great success, which was held in Bonn, Germany, from 6th to 17th November 2017. Fiji became the first Small Island State to take on the presidency of the Conference of Parties of United Nations Conventions on Climate Change. The main agenda issues of the COP23 were endorsed, despite the several hours of negotiations.

According to Hon. Prime Minister Bainimarama "*We have done the job we were given to do, which is to advance the implementation guidelines of the Paris Agreement and prepare for more ambitious action through the Talanoa Dialogue of 2018. We all leave Bonn having notched up some notable achievements, including our Ocean Pathway, the historic agreement on agriculture, an action plan on gender and a decision that benefits local communities and indigenous peoples. We have also secured more funding for climate adaptation and I am pleased to note that we have taken the important next step to ensure that the Adaptation Fund shall serve the Paris Agreement. We have also launched a global partnership to provide millions of climate-vulnerable people the world over with affordable access to insurance.*"

5. Policy Guiding Principles

52. The NDRRP will be guided by the following principles and consistent with legal frameworks as well as international obligations and commitments.

- **Policy Guiding Principle -1: Capacity Development**
- **Policy Guiding Principle -2: Participatory Approaches**
- **Policy Guiding Principle -3: Human Rights and Gender based Approaches**
- **Policy Guiding Principle -4: Safety Net Based Approaches**
- **Policy Guiding Principle -5: Multi-Hazard Approaches**
- **Policy Guiding Principle -6: Cross-Cutting Approaches**
- **Policy Guiding Principle -7: Coordination Mechanisms**
- **Policy Guiding Principle -8: Approaches to Disaster Risk Reduction**

Functional Classification of Disaster Risk Reduction

53. DRR is functionally classified as disaster risk governance and DRR measures. Table 4 shows the functional classification of DRR in detail Similarly, DRR is classified in order of timeline as preparedness, emergency response, recovery and reconstruction, which compose the disaster risk reduction cycle (DRRC)[24] (see Fig.7). That is to say, there are two forms of classification of DRR, which are designated as *'functional classification'* and *'timeline classification'*.

Success Story #4

CCA/DRR Education in Primary School

Presentation at the Uluibau Primary School, September 2017
(The photo was taken by Ms. Kirsi Peltola of Save the Children)

Children already have a good understanding of how closely connected climate change and disaster are. The photo above shows that Loata (11 years old) and Liti (10 years old) from Uluibau Primary School highlight one hazard that is getting more frequent and severe but also point out what should be done to reduce the risk:

"Drought is a very long period of little or no rainfall. Plant a lot of trees so that they hold the water, and there is less carbon dioxide and more oxygen".

[24] 'Disaster Risk Reduction Cycle (DRRC)' is commonly called as 'Disaster Management Cycle'

Table-4 Functional Classification of Disaster Risk Reduction

Disaster Risk Reduction (DRR)	Disaster Risk Governance	Frame-work	Legal Framework	Consolidation of legal systems and institutional arrangements
			Policy and Plan	Mainstreaming DRR into relevant policies, strategies, plans, guidelines, etc.
		Institutional Arrangement	Risk Communication	Institutional capacities for risk communication including information sharing and dissemination
			Collaboration and Coordination	Platform for dialogue and collaboration among government agencies and stakeholders
				All-encompassing coordination arrangement through information sharing
			Risk Evaluation and Assessment	Monitoring and evaluating mechanisms for hazards and disaster risks
				Disaster Loss and Damage Assessment (DLDA)
				Post Disaster Needs Assessment (PDNA)
				Environmental Impact Assessment (EIA), Land use regulations, etc.
			Capacity Development	Activation of national resources, institutional capacities and technical expertise
				Capacity building for government staff and stakeholders to manage DRR
	DRR Measures	Management of DRR Measures	Financing and Investing	Institutional mechanisms for financing and investing in DRR measures
			Management of DRR Measures	Integrated arrangements for reducing the underlying risk factors in various sectors
				Institutional mechanisms for disaster preparedness
				Institutional mechanisms for emergency/consequence management
				Institutional mechanisms for recovery and reconstruction management
		Structural Measures		Disaster risk control measures (flood, strong wind, coastal erosion, storm surge, landslides etc.)
				Safer school and hospital
				Evacuation building
				Afforestation
				Relocation of community
				Disaster proofing of infrastructure (road, airport, harbor and jetty, water provision, sewage, waste, energy, communication network, etc.)
		Non-Structural Measures	System/ Instrument of Disaster Risk Information	Disaster Risk Information System (DRIS)
				Disaster risk prediction system
				Security and protection mechanism
				Public emergency broadcasting system
				Use of Information Communication Technology
			Humanitarian Activities	National emergency operation
				Local emergency operation
				Rescue and relief operation
				Management of evacuation centre
				Fiji Cluster System (education, food security and livelihood, WASH, health and nutrition, shelter, safety and protection, logistics, communication, infrastructure)
			Awareness Raising Activities	Community-based risk communication
				DRR education
				Nurturing and edification of disaster culture
				Community-based disaster risk management

5.1 Capacity Development

Ability of Stakeholders

54. As the national and local government officials guide, coordinate and lead DRR policy implementation, their capacities need to be consistently improved. It is also necessary to enhance the ability of all the other stakeholders—civil society organisations, international organisations, private sectors, the mass media, the academia and the public.

DRR Ability for Stakeholders

55. The followings are necessary to enhance the DRR ability for stakeholders:

- To have knowledge of hazard, vulnerability, exposure and coping capacity;
- To recognise disaster risk;
- To recognise the disaster risk governance;
- To recognise the DRR measures;
- To plan and implement DRR measures; and
- To utilise the lessons learnt to improve implementation of DRR measures.

Mechanisms of National Government

56. It is necessary for the following mechanisms to have a strong foundation in national government with clearly assigned roles, responsibilities and authority:

- To identify sectoral and multi-sectoral disaster risk;
- To build awareness and knowledge of disaster risk through sharing and dissemination of non-sensitive disaster risk information and data;
- To contribute to and coordinate reports on local and national disaster risk;
- To coordinate public awareness campaigns on disaster risk; and
- To facilitate and support local multi-sectoral cooperation.

Roles of Local Governments

57. The roles of local governments in relation to national government and other stakeholders are often not clearly delineated in the NDMA, and the capacities of local governments to reduce disaster risk and to lead response and recovery for communities is often overlooked and may be ineffective.

Responsibilities of Local Governments

58. However, an advantage of local governments is that they are located closest to communities, and hence closest to the people. Responsibilities of local governments include local planning, land use planning, legislation and enforcement of local laws, and provision of critical infrastructure and coordination of services.

Lack of Capacities at National and Local Levels

59. Capacities for dealing with DRR are lacking at the national and local government levels. In particular, a major challenge is the general lack of understanding about disaster risk governance as a critical component of DRR and its linkages with food security, public health, disaster displacement/relocation, livelihood and sustainability.

Capacity Building for Local Governments

60. Capacity building of disaster risk governance by local governments is the key area to enhance local non-structural measures on DRR and to address challenges. The budget allocation is one of the challenges local governments face regarding disaster risk governance. Capacity building of local authorities is crucial for enhancing funding to local institutionalisation and creating partnerships among different stakeholders at the local level.

Roles of communities and civil societies

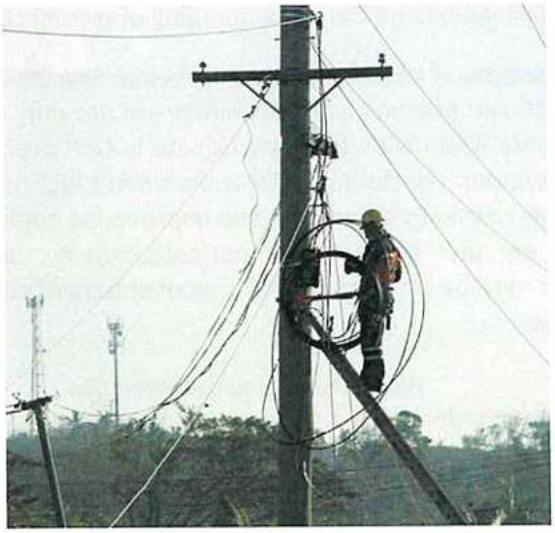
61. The vital roles of communities and civil societies in building resilience of communities to hazards need to be enforced not just for devotion of responsibilities for disaster risk governance, but also through empowerment. This would give communities better access to the necessary resources, capacity building activities and information for decision-making on BBB as to build their resilience.

Sense of Trust

62. The results of risk communication[25] among stakeholders are to be conveyed to the residents as information. However, mere information of the magnitude of the disaster cannot make the people feel secure enough. It is not until they know how the disaster risk is controlled that they get a sense of trust and begin to believe the information, i.e., risk communication is achieved.

Trainers' Training and South-South Cooperation

63. To enhance risk communication ability, it is important to enrich trainers' training concerning DRR at the national, local and community levels and to use it to build greater cooperation, including 'South-South Cooperation' in collaboration with NGOs/CSOs and private sector networks. South-South cooperation is required for enhancing capacity building at the national and local levels. Sharing of lessons and best practices from the experiences of Fiji would help provide working models for other countries to adopt and emulate.



FEA Repairs, March 2016

[25] Refer to "Annex-11: Glossary"

5.2 Participatory Approaches

All-of-Society Engagement and Partnership

64. DRR requires an all-of-society engagement and partnership as the whole-of-society approach (WoSA). It also requires empowerment and inclusive, accessible and non-discriminatory participation, paying special attention to people disproportionately affected by disasters.

Links between Community and Local Government

65. Since local governments and communities are often the first responders after the disaster, it is important that the links between the local communities and the local governments should be strengthen through policy environment.

DRR Education

66. One strategy for DRR is the participation of residents in non-structural measures, and DRR education would be effective to encourage their participation. Community-led mechanisms on DRR and emergency response have proven to be important measures to support preparedness. Moreover, DRR education should be incorporated into school education, for recognition of the danger of disasters and the necessity of DRR measures at early ages could result in effective DRR.

Improvement of Organised Voluntary Works

67. Special attention should be paid to the improvement of organised voluntary works of NGOs, civil society groups and networks who not only contribute volunteer time and resources in disaster response but are also actively engaged in humanitarian and awareness raising activities.

Pursuing of New Means of Livelihood

68. It is expected that pursuing new means of livelihood, which could lead to the empowerment of the residents, would result in their participation in non-structural measures on DRR. In implementing projects related to DRR measures, it is necessary to gain the leadership of local leaders and the understanding of overall communities

Inclusion of Women, Children and Persons with Disabilities

69. Women, children and persons with disabilities are not only most vulnerable but also have a lot to contribute when allowed to participate in DRR processes. As women are the first responders in communities during disasters, women's inclusion in every aspect of DRR processes is especially crucial to strengthen and improve the coping capacity of the society. Above all, based on the principle of normalisation [26], persons with disabilities should participate in various kinds of activities as members of society in the same way as other normal citizens.

Ways towards Equal Participation

70. There has to be a broader and a more people-centred prevention approach to disaster risks, and equal access to information is the first step towards equal participation.

---

[26] "Wolfensberger, Wolf, 1981: The Principle of Normalization in Human services, National Institute on Medical Retardation": Refer to "Annex-11: Glossary"

5.3 Human Rights and Gender Based Approaches

Humanitarian Assistance

71. A disaster is an assault on human security. All can be affected in a disaster, but some sectors are particularly impacted because of pre-existing disadvantages and exclusions. Their distinct needs, which must be considered, are to ensure that humanitarian assistance reaches the most vulnerable and does not lead to further harm.

Human Rights-Based DRR

72. An effective DRR empowers at-risk communities and vulnerable groups to take collective actions to reduce their risks and assert their rights for protection. A human rights-based DRR therefore promotes broad popular participation and the active roles of vulnerable groups. It involves transparency and consultation in decision-making processes.

Human Rights Protection

73. The breakdown of formal and informal protection mechanisms during emergencies could engender violence, exploitation and abuse of women and children. Human rights protection should focus on the rights to life, safety, dignity, non-discrimination and the access to basic necessity to ensure that every person has equitable access to humanitarian and development assistance according to his or her specific needs. How and to what extent are they protected is the reflection of the degree of human rights protection. Priority will be given to supporting the strengthening capacities of women/women's NGOs to lead in DRR/emergency response at the local and community levels.

Gender Considerations

74. Gender considerations are included in the NDRRP. This is in line with the Gender Action Plan which was established under Fiji's leadership at COP23 in 2017 and also in alignment with the provisions of the Fiji's 5-Year and 20-Year Development Plan.

Elimination of All Forms of Discrimination against Women

75. The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), adopted in 1979 by the UN General Assembly, defines discrimination against women as "...any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field."

Roles of Vulnerable Groups

76. Vulnerable groups—the disabled, women, children, youth, elderly, poor families and the landless who are the ones most severely affected because of pre-existing exclusion—also need to be reinforced both in emergency responses and in risk reduction through the inclusion of explicit activities for strengthening their roles in decision-making on DRR. As the main providers of food security for families and for the management of natural resources, above all others women have a key role to play in decision making on DRR.

Challenges Including Gender-Based Violence in case of Evacuation

77. It is crucial for human rights protection to deal properly with the following challenges including gender-based violence in case of evacuation:

- Discrimination and injustice are major causes of poverty. Therefore, it is vital to ensure women and men benefit equally;
- In addition to the inequalities, the increased vulnerability of women and girls to disaster risks[27] is overcome;
- Safety and protection with dignity of women, children, the elderly and members of LGBT[28] community in the evacuation centres[29] are secured;
- Information disruption, solitude, isolation, disjuncture, prejudice, discrimination, unemployment, poverty, indirect death, etc. are regarded;
- Disrupted access to basic health care services, including maternal, newborn and child health, sexual and reproductive health, post-traumatic stress disorder (PTSD), food security and nutrition, housing and education are regarded; and
- People with life threatening and chronic disease due to their particular needs are regarded.

Solutions for Challenges

78. The solutions for the above challenges should be included in the design of policies and plans to manage risks before, during and after disasters. On this point, it should be noted that:

- Women and their participation are critical to effectively managing disaster risks and designing, resourcing and implementing gender-sensitive DRR policies, plans and programmes; and measures for adequate capacity building need to be taken to empower women for preparedness as well as build their capacities for alternate livelihood means in post-disaster situations;
- Children and youth are agents of change and should be given the space and modalities to contribute to DRR, in accordance with legislation, national practice and education curricula;
- Person with disabilities and their organisations are critical in the assessment of disaster risk and in designing and implementing plans tailored to specific requirements, taking into consideration, inter alia, the principles of universal design; and
- Older persons have years of knowledge, skills and wisdom, which are invaluable assets to reduce disaster risk, and they should be included in the design of policies, plans and mechanisms, including early warning.

National Government as Primary Duty Bearers

79. It is therefore important that the national government be recognised as a primary duty bearer that should promote accountability, transparency and effectiveness of awareness and human rights by supporting the development of scientific evaluation and validation, including identification of evaluation criteria.

---

[27] "Alexander: Earthquake and gender, ALERT, 2013"

[28] Lesbian, Gay, Bisexual, and Transgender

[29] This will be supported by promoting and modelling safe/inclusive and accessible spaces for women/PwDs/young women/LGBT community.

5.4 Safety Net Based Approaches

Extreme Social Inequalities

80. When a disaster occurs, certain social groups find it no more than a minor inconvenience. But even if those groups do not suffer any damage or negative impacts, other social groups may find that their entitlements are completely destroyed. In that case, an extreme social phenomenon where inequalities manifest between groups that did not suffer from the disaster and those that suffered serious damage can arise. If these inequalities arise when a hazard strikes, it can end up creating significant problems for the society later on.

Sustainable Development and Safety Nets

81. One strategy for preventing threats from manifesting is to set up the kinds of safety nets that will function equally well during situations calling for preparedness, emergency response, recovery and reconstruction. This is absolutely critical for ensuring sustainable development. It cannot be stressed enough that sustainable development and safety nets are two sides of the same coin.

Establishment of Safety Nets

82. When it comes to social systems, it is absolutely critical to establish safety nets to create redundancies in all aspects of life. In that sense, DRR measures are a part of socio-economic systems—making safety nets necessary for them as well.

Economic Safety Nets

83. Economic safety nets may include better informed planning decisions for safer investments, risk-averse land-use planning, stronger insurance regimes, diversified economic sources with distributed risks, social fund and tax reduction mechanisms especially for the poor, mechanisms to protect assets and improved contingency planning for supply chains.

Social Safety Nets

84. Similarly, social safety nets may include safety mechanisms in lifeline systems of education, health and security, and community-based local systems that will be able to trigger internal response mechanisms that are quick and sensitive to specific local social needs.

Security and Protection Mechanisms

85. Examples of safety nets for DRR include the need for security mechanisms that protect the safety and security of human life, personal assets and so forth in the event of a disaster. There is also a need for protection mechanisms that compensate disaster victims themselves and provide indemnity for damages to their assets. For this reason, Fiji needs to set up these security and protection mechanisms in advance, so that they are able to function properly when a hazard strike.

Disaster Finance Management

86. The disaster finance management schemes [30] including financing, risk financing/insurance and funds are summarised in Table-5, which mainly focuses the description on the instrument at the pre-disaster stage.

[30] Used "ADB Institute: Disaster Risk Management in Asia and the Pacific, 2015"as a reference

Relocation from Hazardous Areas

87. It is necessary to relocate the residents in the hazardous area to a safer place where they could sustain their livelihood[31]. The point regarding disaster displacement/relocation is as followed:

- The decision to relocate a community/infrastructure/an individual will have to be informed by thorough integrated vulnerability assessment (IVA), climate vulnerability assessment (CVA) and hazard risk mapping; and
- Relocation has to be the last resort after exploring/exhausting all other CCA/disaster mitigation option.

Table-5 Finance Management Schemes for Disaster Resilience

	Stage	Instrument	Scheme	Intended Purpose
Disaster Finance Management (Economic Safety Net)	Pre-Disaster	Financing	Budget	For DRR-related management/measures
			Fund	
			Subsidy	For an entity for implementing a practice or performing a specified action
			Loan	For DRR-related project such as flood risk reduction project
			Grant	
			Social Fund	For communities to enhance community assets, such as community facilities and infrastructure, as well as services such as microfinance and micro-insurance
			Tax Reduction	To incentivise the uptake of DRR. For example, households and business are to be allowed to reduce taxable income by cost covered for disaster proofing of building
		Risk Financing (Risk Transfer)	Insurance	For public risk
				For private risk (property, agriculture and micro-insurance coverage for small holders)
			Micro-Insurance	For poor farmer and household to service low-income markets or to avoid insolvency
			Index-Based Insurance	For crops and livestock to make payout contingent on a physical trigger, such as rainfall measured at a regional weather station
			Other Option	Commercial Property and Crops Insurance, Non-Life Insurance, Contingency Credit, Sovereign Insurance, Catastrophe Bond, National Public-Private Pool, and Intergovernmental Risk Pooling
	Post-Disaster	Financing	• Budget • Fund • Subsidy • Tax Reduction	For relief-focused activities
				For recovery-focused activities
				For reconstruction-focused activities

[31] According to the "Strategic Planning Department: Concept Paper for Formulation of Fiji's Joint Strategy for Building Resilient Communities, 2015", the government has identified 830 vulnerable communities at risk from climate related events to be relocated. Out of these, 48 communities are in urgent need of relocation that would be supported through government financing with assistance from development partners.

5.5 Multi-Hazard Approaches

Occurrence of Multi-Hazards

88. There exist myriad hazards—natural hazards or human-induced/technological hazards (Table-1) —that could probably cause a disaster. Thus, the disaster assumes complicated aspects coupled with area characteristics like the terrain and the nature of the soil. In addition, it is not rare that multi-hazards occur at the same time and the damage is magnified.

Secondary Impacts of Disasters

89. Prediction and forecast of hazards, evacuation and relief/rescue, recovery and reconstruction are conducted by different agencies. As a result, the method to recognise the temporal and spatial extent of the devastated area as well as the information level differs depending on the sort of agency. Moreover, the approach of DRR measures and the standards of acceptable risks are different. Under these circumstances, even though some parts of DRR measures are sophisticated, if they have a weak point (a bottleneck) in software or hardware, it often causes secondary impacts of disasters. Namely, disaster damage can be fomented by the difficulty or insufficiency of the prediction and forecast of the target hazard or by the weak parts of the infrastructures.

Safety of Residents

90. Nevertheless, even though a convergent disaster has occurred, the difficulty of tackling the disaster cannot be an excuse for national or local administrative agencies. In the case of the hazard that is predicted to cause grave damage, it is requisite to deal with the hazard by a cross-cutting approach so that the safety of the residents is secured as much as possible and their possessions are safeguarded.

Multi-Hazard Approach and Inclusive Risk-Informed Decision-Making

91. DRR requires a multi-hazard approach and inclusive risk-informed decision-making based on the open exchange and dissemination of disaggregated data, including by sex, age, disability and foreign tourists, as well as on easily accessible, up-to-date, comprehensible, science-based, non-sensitive risk information, complemented by traditional knowledge.

Accurate Disaster Risk Information

92. In order to provide accurate disaster risk information, it is important to:

- Prepare hazard risk maps by conducting survey, observation and gauging of hazards using appropriate and accessible ICT;
- Elaborate the means of transmitting disaster information;
- Streamline and sophisticate the approaches for disaster risk assessment;
- Anticipate damage with multi-scenarios; and
- Convey the result thoroughly to the stakeholders through the mass media.

5.6 Cross-Cutting Approaches

Range in Application of the NDRRP

93. DRR is a cross-cutting issue. Therefore, the NDRRP is formulated to be integrated and consistent, not only getting involved comprehensively and rigorously with the NDMA but also acting in the field of local government, agriculture, lands and mineral resources, environment, infrastructure, waterways, water, education, health, national security, economy, foreign affairs, iTaukei, women, communication and so forth. Fig.5 illustrates roughly a cross-cutting association between the NDRRP and relevant acts.

Integrated Scenario for DRR Measures

94. In planning, DRR measure should not be confined to the response of each individual disaster and to the pre-and-post disaster response. Instead, it is by far necessary to reduce disaster damage cross-cuttingly and effectively by developing an integrated scenario for DRR, by obtaining multi-stakeholder engagement and by establishing public-private partnership (PPP), if necessary.

Multi-Stakeholder's Consultation

95. As DRR is a cross-cutting issue, it is crucial to have multi-stakeholder consultation with relevant sectors and divisions to serve as a comprehensive approach. Multi-stakeholder consultative mechanisms and the involvement of community-based organisations (CBO) for DRR[32] are needed in Fiji.

Roles of Private Sector

96. Resilience of the society depends on the ability of the economy to bounce back. Small and medium business are vital to the economy and social fabric of the country, whilst medium and large enterprises such as sugar and tourism industries provide the foundation of the economy.

Business, Professional Associations and Private Sector Financial Institutions

97. Business, professional associations and private sector financial institutions, including financial regulators and accounting bodies, as well as philanthropic organisations, should pay attention to:

- Integrate disaster risk governance, including business continuity, into business models and practices via disaster risk-informed investments, especially in small and medium-sized enterprises;
- Engage in and support research and innovation as well as technological development for disaster risk governance;
- Engage in awareness-rising and training for their employees and customers;
- Share and disseminate knowledge, practices and non-sensitive data; and
- Actively participate, as appropriate, and under the guidance of the public sector, in the development of normative framework and technical standard that incorporate disaster risk governance.

[32] Refer to "Annex-11: Glossary"

Business Continuity Plan

98. Mechanisms for DRR are not only necessary for the authorities concerned but also imperative for the private sector. In terms of how to continue business activities at the time of a disaster, it is recommended that each individual business establish a business continuity plan (BCP)[33]. The training for the establishment of BCP is currently being conducted by the national government authorities and donors, which ought to be continued.

Mass Media

99. Mass media have responsibility for effectiveness of proper information on DRR. Therefore, mass media should pay attention to:

- Take active and inclusive roles at the national, local and community levels in contributing to the raising of public awareness and understanding;
- Disseminate information on accurate and non-sensitive disaster risk, hazard and disaster, including small-scale disasters, in a simple, transparent, easy-to-understand and accessible manner, in close cooperation with national authorities;
- Adopt specific DRR communication policies;
- Support, as appropriate, EWS and life-saving protective measures; and
- Stimulate a culture of prevention and strong community involvement in sustained public education campaign and public consultation at all levels of society, in accordance with national practices.

Resilience of National Health Systems

100. It is also important to enhance the resilience of national health systems by:

- Integrating DRR into primary, secondary and tertiary health care, especially at the local level;
- Developing the capacities of health workers in understanding disaster risk and applying and implementing DRR approaches in health works;
- Promoting and enhancing the training capacities in the field of disaster medical treatment; and
- Supporting and training community health groups in DRR approaches in health programmes, in collaboration with other sectors, as well as in the implementation of the International Health Regulations (2005) of the World Health Organisation.

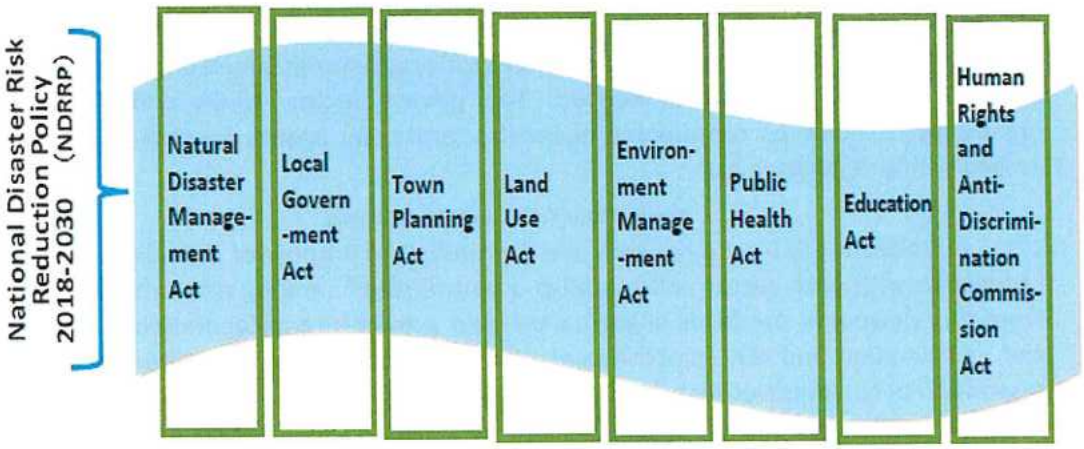


Fig.5 The NDRRP gets involved with relevant acts cross-cuttingly

[33] Refer to "Annex-11: Glossary"

5.7 Coordination Mechanisms

Coordination as Eternal Agenda

101. Coordination is the eternal agenda in coping with a disaster. A wide range of stakeholders must be coordinated, because DRR is everyone's business. DRR requires a multi-sectoral approach, which covers urban development, infrastructure, water, education, health and many other sectors. Stand-alone sector development planning cannot address the complexity of problems caused by disasters, nor can such planning build resilient society.

Coordination Gaps

102. There are often wide gaps between policies and institutional arrangements at the national, local and community levels. Coordination gaps are also existed between structural and non-structural measures on DRR.

Coordination and Cooperation between Different Organisations

103. As for the roles and obligations of the tasks concerning DRR, there exist various governing agencies, which has led to the overlap of programmes and/or projects. Collaboration and cooperation between different sectoral agencies at the national level would help to consolidate the mainstreaming of DRR into the policies, plans and programmes for different sectors that have a major impact on disaster risk.

Coordination between National and Local Governments

104. Since local events are the fundamental features of disasters, local governments and communities are in a good position to be the first responders and to have the principal responsibility for disaster risk governance. During normal times, the national government can provide financial and technical support to local governments in promoting DRR. The national government is also required to substantially support local governments when they cannot respond to large-scale disasters.

Overlap between Programmes and Projects

105. For instance, the overlap between the projects regarding EWS, disaster risk assessment, capacity development, technical training, evacuation drill has been around for a long time in Fiji, but the coordination of these projects has not progressed; unresolved issues remain.

Focal Point Agency for DRR[34]

106. The above-mentioned realities indicate that a focal point agency for DRR to eliminate duplications among DRR tasks and/or programmes/projects among domestic agencies and aid agencies is needed. The private sector, NGOs and civil society organisations should be coordinated under the focal point agency for DRR in addition to governmental organisations.

Formation of Network Mechanism

107. It is effective to form a network mechanism for the purpose of consolidating random knowledge with each sector and establish a partnership[35] among relevant stakeholders. From this viewpoint, the focus of the partnership is to ensure collaboration, cooperation and coordination and the establishment of relationships based on mutual respect and responsibility to empower stakeholders' resilient actions. This could be achieved through the free, continuous and consistent flow of information, and sharing of ideas and best practices.

[34] Cited from "ADB Institute, 2015: Disaster Risk Management in Asia and the Pacific"
[35] Refer to "Annex-3: Partnerships in the Pacific and Fiji"

5.8 Approaches to Disaster Risk Reduction

Actions on Tackling Underlying Disaster Risks

108. Enhanced work to reduce exposure and vulnerability, preventing the creation of new disaster risks and accountability for disaster risk governance are needed at all levels. More dedicated actions need to be focused on tackling underlying disaster risks, such as:

- The consequences of poverty and disparities among people, unplanned and rapid urbanisation, poor land management, climate change and variability; and
- Compounding factors such as demographic change, weak institutional arrangements, non-risk-informed policies, lack of regulations and incentives for private DRR investment, complex supply chains, limited availability of technology, unsustainable uses of natural resources, declining ecosystem, pandemic and epidemic.

Aims of Disaster Risk Governance

109. Disaster risk governance is aimed at protecting persons and their property, health, livelihood and productive assets, as well as environmental, cultural and heritage assets, while promoting and protecting human rights, including the right to development.

Problem of Disaster Risk Governance

110. The problem is that disaster risk governance is rarely systematically factored into the planning and protection of developments. This may present positive opportunities for development on which governments can capitalise while reducing disaster risks.

Strengthening Good Governance in DRR

111. Moreover, it is necessary to continue strengthening good governance in DRR at the national level and improving preparedness and national coordination for disaster response and recovery and to use post-disaster reconstruction to BBB supported by strengthened modalities of international cooperation.

Efficient and Effective Practices for DRR

112. The following approaches are necessary for efficient and effective practices for DRR:

- A broader and a more people-centred preventive approach to disaster risk;
- Multi-hazard and multi-sectoral based, inclusive and accessible practices for DRR;
- Engagement with relevant stakeholders including vulnerable groups in the design and implementation of policies, plans and standards; and
- Collaboration with the public and private sectors and civil society organisations, as well as academia and scientific and research institutions.
- Integration of CCA and DRR

Requirements of DRR Measures

113. DRR measures should be implemented as a responsibility of the national and local governments, according to categories of disaster risks and considering the following contents:

- DRR measures require the full engagement of all institutions of executive and legislative officers at the national and local levels;

- DRR measures require a clear articulation of responsibilities across public and private stakeholders, including business and academia, to ensure mutual outreach, partnership, complementarity in roles and accountability and follow-up; and
- DRR measures require strong coordination mechanisms within and across relevant sectors and with relevant stakeholders at all levels.

Integration of CCA and DRR

114. It is necessary to integrate CCA and DRR as cross-cutting issues that impact all sectors. The aim would be for integrated policies and plans at the national level that enable implementation of coherent measures to deal with underlying risks from climate change and disaster. This aim would be for CCA and DRR to complement each other so as to support national and local level integration.

Rationale for Integrated Approach

115. Benefits of a more systematic and integrated approach to reducing the consequences of climate change and disasters include rationalizing, where appropriate, multiple funding sources and multiple programmes/projects that are addressing similar needs. An integrated approach can reduce duplication and optimize use of limited resources and sharing of technical expertise. However, the degree of integration will vary based on the needs and priorities of Fiji. Fig.6 illustrates the overlap of common concerns for the bases of integration of CCA and DRR.

Draft National Adaptation Plan

116. After the National Climate Change Policy 2012[36], the FRDP and the Green Growth Framework proposed the integration of CCA/DRR in Fiji. In ensuring the integration of CCA and DRR, the NDRRP was the basis in which the ten adaptation priority actions were chosen for the Hazard Management section of the draft National Adaptation Plan (NAP), which shall provide a guideline on the integration of CCA and DRR.

Integrated Disaster Risk Governance and Consequence Management

117. Disaster risk governance cannot sustain itself without a consequence-management mechanism that provides for the sharing of expertise and resources among public and private entities at the local and community levels and integrates support from the national government that enables them to respond to disaster events that normally exceed local response capacities.

Flood in Ba Town, January 2009

[36] The 'Climate Change policy 2012' has been reviewed by the Climate Change Unit of the Ministry of Economy.

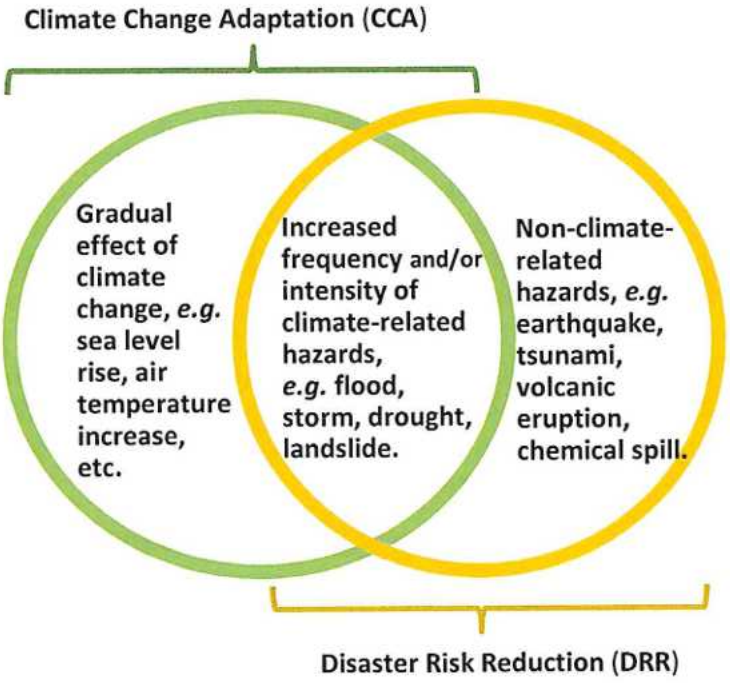


Fig.6 Overlap of Common Concerns of CCA and DRR[37]

Success Story #5

The Nadi Regional Specialised Meteorological Centre

FMS Building in Nadi, May 2015 (The photo was taken by Mr. Koji Kuroiwa of JICA Expert)

The World Meteorological Organisation (WMO) designated six national meteorological services as Regional Specialised Meteorological Centres (RSMCs) in the world under the WMO Weather Watch Programme. Fiji Meteorological Service (FMS) holds the distinguished title of RSMC Nadi – Tropical Cyclone Centre for the South Pacific. RSMC Nadi is responsible for issuing tropical cyclone advisories for the region. FMS operates the National Weather Forecasting Centre (NWFC) in Nadi to issue daily weather forecasts and severe weather warnings for the public. It also provides weather forecasts to seven countries/territory in the pacific to support their meteorological services.

[37] Cited from "Framework for Resilient Development in the Pacific"

6. Policy Strategies

Policy Strategies

118. To attain the policy goal as outlined in Chapter 4 of the NDRRP, it is necessary to establish effective actions to be led and/or coordinated by a variety of government agencies. To comply with the 'Policy Guiding Principles' in Chapter 5, the following 'Policy Strategies' are established, considering the main contents of DRR (see Policy Strategy 1 to 3, and 7) and the 'timeline classification' based on the disaster risk reduction cycle (see Fig.7 and Policy Strategy 4 to 6).

To avoid confusion, two forms of the classification of DRR are summarised and listed in Table-6. Since categories among two forms of the classifications of DRR are overlapping and affecting each other, the situation of confusing DRR terminology would be improved by the use of these classifications.

- **Policy Strategy-1: Mainstreaming Disaster Risk Reduction**
- **Policy Strategy-2: Disaster Risk Governance**
- **Policy Strategy-3: Financing and Investing**
- **Policy Strategy-4: Preparedness**
- **Policy Strategy-5: Emergency Response**
- **Policy Strategy-6: Recovery and Reconstruction**
- **Policy Strategy-7: Knowledge and Information**

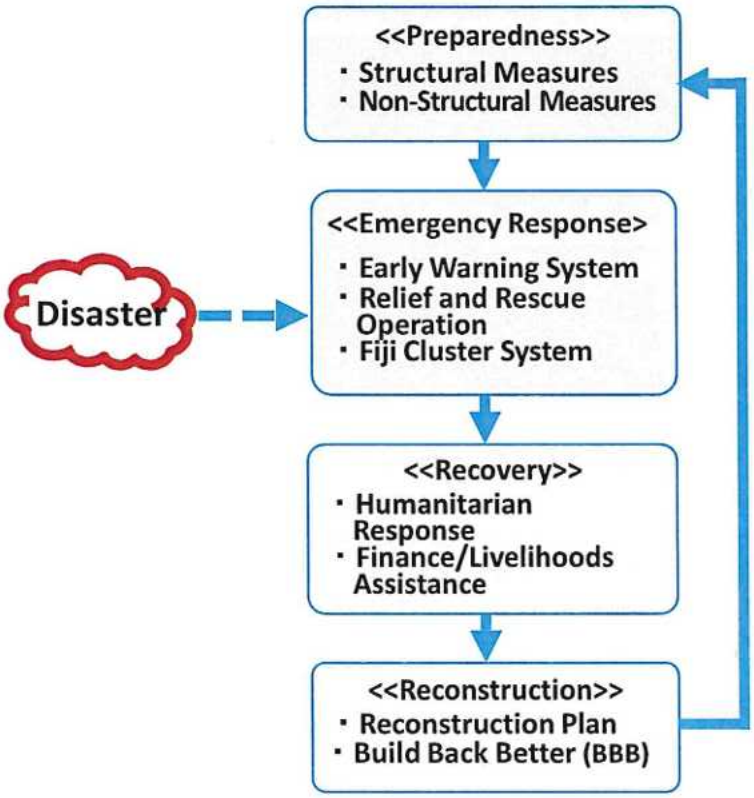


Fig.7 Disaster Risk Reduction Cycle (DRRC)

Consultations

119. As a part of the development of the policy strategies, the DRR policy unit of the NDMO has undertaken consultations with relevant organisations concerning DRR and conducted workshops in various divisions (Annex-9). Concurrently with these actions, this team has surveyed 'Contents of Disaster-Related Acts and Policies (Annex-4)', 'Existing Laws and Basic Policies Concerning Each Sector (Annex-5)', 'Disaster Management Systems (Annex-6)', 'Disaster Risks (Annex-7)', 'Administrators for Public Facilities (Annex-8)', 'Sectoral Impacts of Disaster Risks (Annex-10)' and so forth.

Action Items

120. Furthermore, considering both the 'Policy Strategies' and the results of consultations with relevant organisations, together with the requirements of the Sendai Framework, the FRDP and the Green Growth Framework, **122 action items** were established in the NDRRP. (See 'Table-11: Progress Schedule Chart for Action Items for Fiji', Page 63-81)

Obligation for Implementing Agencies

121. It is the obligation of the implementing agencies to implement these action items with support and collaboration of supporting agencies.

Table-6 Two Types of DRR Classification

<table>
<tr><th>Classification</th><th>Stage</th><th colspan="2">DRR Item</th><th>Reference</th></tr>
<tr><td rowspan="6">Functional Classification on DRR</td><td rowspan="5">Every Stage</td><td rowspan="3">Disaster Risk Governance</td><td>Policy and Legal Framework
(Legal framework, policy and plan)</td><td rowspan="6">Table-5</td></tr>
<tr><td>Institutional Arrangements
(Risk communication, collaboration and coordination, risk evaluation and assessment, capacity development)</td></tr>
<tr><td>Management of DRR Measures
(Financing and investing, integration of DRR measures, management of DRR measures)</td></tr>
<tr><td rowspan="2">DRR Measures</td><td>Structural Measures
(Disaster risk control measures, safer school and hospital, evacuation building, afforestation, relocation, disaster proofing of infrastructure)</td></tr>
<tr><td>Non-Structural Measures
(System/Instrument of disaster risk information, humanitarian and awareness raising activities)</td></tr>
<tr><td>Pre-Disaster</td><td colspan="2">Preparedness
(Structural measures including mitigation and non-structural measures)</td></tr>
<tr><td rowspan="3">Timeline Classification on DRR</td><td>During Disaster</td><td colspan="2">Emergency Response
(EWS, relief and rescue, Fiji Cluster System)</td><td>Fig.7</td></tr>
<tr><td rowspan="2">Post-Disaster</td><td colspan="2">Recovery
(Humanitarian response, finance/livelihood assistance)</td></tr>
<tr><td colspan="2">Reconstruction
(Reconstruction plan, BBB)</td></tr>
</table>

6.1 Mainstreaming Disaster Risk Reduction

122. Mainstreaming disaster risk reduction into every level of governance arrangement, development initiatives and budget arrangements

Development and Mainstreaming of DRR

123. Now that disasters are regarded as serious impediments to socio-economic development, mainstreaming DRR has important implications for the growth and development agenda. It is therefore crucial to effectively integrate DRR considerations into sustainable development policies, planning, programmes and financing at all levels of governments.

Purpose of Mainstreaming DRR in Fiji

124. The purpose of mainstreaming DRR in Fiji is:

- To include the core principles of DRR into decision-making, policies and legal frameworks of Fiji, so that process toward its national vision and development goals will not be hampered by disasters;
- To reflect those principles in government functions (administrative policies and systematic decisions); and
- To make them operable at all levels, including the implementation strategies, development plans, standard operation procedures (SOPs) and budgeting for various programmes/projects.

Evidence-Based Policies for Mainstreaming DRR

125. Mechanisms are needed for learning from experience to help government formulate evidence-based policies for mainstreaming DRR into national plans and SOPs. These would enable the national and local governments as well as stakeholders—communities, civil societies and private sector—to make decision based on sound, reliable and up-to-date information.

Revise of NDMA

126. Fiji needs to make a concerted effort to create a legal framework and government structures that are more in line with DRR. One necessary action is to revise the NDMA every time Fiji experiences a devastated national disaster like Tropical Cyclone Winston in 2016. The NDMO and other key agencies charged with carrying out disaster management tasks also need to be reconfigured as the situation demands.

Outcomes of NDRRP

127. Furthermore, in concert with the recommendations related to mainstreaming DRR put forth in the Sendai Framework, the NDRRP calls for the following outcomes:

- To review Fiji's National Disaster Management Act/Plan;
- To set up demarcation concerning disaster risk governance and DRR measures among the national, local governments and communities, and state them in the new NDMA, making the lines of responsibility clear;

- To develop national action plans and SOPs;
- To formulate local action plans for DRR and SOPs; and
- To implement comprehensive DRR measures in order to translate those plans into concrete actions.

Disaster Management Plans

128. These disaster management plans represent detailed disaster risk governance strategies to address disaster risks before they manifest. Therefore, various DRR plans and action plans naturally have both planning and technical issues to work out. That said, knowing that disaster risks can crop up precisely because of the way social systems are set up, Fiji must also define, as part of these plans, how it wants those social systems to look. Implementing plans that take this factor into consideration is what will allow the objective (Chapter 1) of the NDRRP, namely *'To deliver on the policy's priority of preventing new disaster risk and reducing existing disaster risk in line with relevant regional and global frameworks'*, to become a reality.

Joint Mainstreaming of DRR and CCA

129. In line with the FRDP, the NDRRP seeks to promote a joint mainstreaming of DRR and CCA into national development plans.

Roles and Responsibilities of Organisations

130. In terms of mainstreaming DRR across multiple sectors, the NDRRP stresses that sustainable development requires making an effort to coordinate national and local frameworks that involve laws, regulations and public policies. It also guides the public and private sectors to do the following while clarifying the roles and responsibilities of organisations involved in DRR:

- To evaluate disaster risks and build risk maps;
- To address disaster risks that threaten services and infrastructure that are publicly owned, managed and/or regulated;
- To strengthen institutional capacities to reduce vulnerability to hazards;
- To strengthen organisations designed to develop coordination mechanisms on duplication of DRR programmes and projects, promoting the effective use of the PDN (pacific disaster net) calendar and the like;
- To strengthen frameworks and initiatives that ensure classification of disaster risks related to financial stimulus packages, public awareness and education activities, legal/administrative measures and so forth; and
- To create incentives for individual, household, community and corporate activities to serve as safety nets and promoting them.

Structural Reforms

131. Structural reforms aimed at consolidating the organisations that carry out disaster risk governance and DRR measures are a critical aspect of DRR policy implementation. Achieving this goal hinges on the following ten (10) key actions.

- Administrative divisions in Fiji consist of the Ministry of Local Government, Housing and Community Development (MOLG) that oversees the two cities and thirteen towns, while other areas are under the jurisdiction of the Ministry of Rural and Maritime

Development (MORM) and the Ministry of Disaster Management and Meteorological Services (MODM). However, the two jurisdiction zones are interwoven with one another. The situation is not an ideal one from the standpoint of consistency among the administrative arrangements, and efforts need to be made to either combine the organisations or consolidate their DRR functions in the interest of building a streamlined and effective DRR government agency.

- Fiji needs to combine the following five organisations into a government agency capable of implementing comprehensive information management if it is to build a comprehensive management system to handle real-time disaster information: the NDMO, the Fiji Meteorological Services (FMS), the Mineral Resources Department (MRD) and the Department of Environment (Ministry of Waterways and Environment).
- Fiji needs to combine two organisations into a government agency capable of implementing structural measures related to DRR: The Ministry of Waterways and Environment, which takes charge of designing and constructing river flood control structures, retention dams and similar infrastructure; and the NDMO, which takes charge of building seawalls.
- A key factor for implementing DRR is finance, which in a development context is often provided by governments, donors and multilateral development banks. Since the Ministry of Economy holds jurisdiction over financing and investing in DRR, it is worthy of special mention that it should undertake an important role more than ever in the National Disaster Management Council to promote effective coordination and prioritisation of DRR policy and programmes as well as resource allocation across different ministries.
- The National Disaster Management Council and the National Emergency Operation Centre should designate the Ministry of Foreign Affairs as the one-window agency to establish or strengthen coordination and funding mechanisms and procedures for relief assistance with foreign aid providers in case of a national disaster.
- The existing NDMA is reviewed to disseminate warnings and information on hazards directly from directors of the FMS and the MRD to the mass.
- The existing NDMA is reviewed to change the governing agency from the NDMO to the MRD, which holds jurisdiction over the declaration of both the tsunami warning and the tsunami warning cancellation.
- Some relevant acts are to shift the governing agency that holds jurisdiction over the building codes from the Ministry of Health and Medical Services (MOHM) to the MOLG.
- A future complication would come where there are horizontal disconnects among various government policies and plans in DRR at the national level. To solve such intractable problems, a focal point agency is to be newly founded under the Office of the Prime Minister to promote DRR. The agency should have authority to formulate a vision, develop national policies and plans, allocate budget for government organisations and function as a coordinating secretariat of DRR Committees under the Disaster Management Council.
- Finally, adopt the active roles of the Republic of Fiji Military Forces (RFMF), the Fiji Police Force (FPF), the National Fire Authority (NFA) and the Fiji Correction Service (FCS) to take on early humanitarian operations and check compliance with DRR.

6.2 Disaster Risk Governance

132. **The system of institutions, mechanisms, policies and legal frameworks and other arrangements to guide, coordinate and oversee disaster risk reduction and related areas of policy.**

Risk Governance[38]

133. Governance refers to the actions, processes, traditions and institutions by which authority is exercised and collective decisions are taken and implemented.

Risk governance applies the principles of governance to the identification, assessment, evaluation and communication of risks in the context of plural values and distributed authority. It includes all important actors involved, considering their rules, conventions and processes. It is thus concerned with how relevant risk information is collected, analysed, understood and communicated, and how management decisions are taken and communicated. Risk governance mobilises both descriptive issues (how decisions are made) and normative concepts (how decisions should be made). In its application as a normative concept, it specifies the principles of good governance. These principles include:

- Transparency;
- Effectiveness and efficiency;
- Strategic focus;
- Sustainability;
- Equity and fairness;
- Compliance for the rule of law; and
- The need for the chosen solution to be politically and legally feasible as well as ethically and publicly acceptable.

Disaster Risk Governance

134. Disaster risk governance is of great importance in Fiji, and clear vision, plans, competence, guidance and coordination within and across sectors as well as participation of relevant stakeholders are needed. Strengthening disaster risk governance at the stage of preparedness, response, recovery and reconstruction is therefore necessary and fosters collaboration and partnership across disaster risk governance mechanisms and institutions for the implementation of instruments relevant to DRR and sustainable development.

Roles of Disaster Risk Governance

135. The roles of disaster risk governance for relevant organisations are summarised and listed in Table-7.

Primary Responsibility for the Government

136. The national government, as the main duty bearer, has the primary responsibility to protect its residents from disaster losses and aid those affected by disasters. Thus, the system in which the national government exerts leadership in enabling local governments, private firms, NGOs, development partners is formulated so that government can fulfil its responsibility to inform the public by cooperating with mass media. In this task, there must be a process for various stakeholders to recognise and analyse disaster risks and share the solutions.

---

[38] Cited from "International Risk Governance Council 2017: Risk Governance Framework"

Roles of Local Governments

137. The roles of local governments are a key factor as they are the level of disaster risk governance closest to the people and play a vital role in education and in mobilising and responding to the public to promote sustainable development. Local governments are also important players in DRR as they are responsible for key functions, such as land use planning, infrastructure maintenance, enforcement of building codes, and provision of essential services such as water and sewage to communities.

Strong Leadership

138. Leaders at the local level must exert strong leadership in unilatgerally arranging projects related to multiple agencies and in enabling task forces to function more effectively. It is crucial to ensure that national agencies thoroughly recognise that they should comprehend overall disaster responses and coordinate the demands of communities.

Success Story #6

Habitat Fiji Garners Merit Certificate at 2017 UN Sasakawa Award for DRR

Carpenter's Training, April 2017

Habitat Fiji's Build Back Safer programme to reduce disaster risk and improve resilience won a certificate of merit with a grant of US$15,000 at the 2017 UN Sasakawa Award for DRR.

The Build Back Safer programme is part of Habitat Fiji efforts to help affected communities recover from Tropical Cyclone Winston that struck on February 20, 2016. The Category 5 cyclone killed 44 people and affected 350,000 people. Thousands of people were displaced and DRR and at least 31,000 homes were damaged. By April 2017, Habitat Fiji had helped more than 180 families rebuild their homes and assisted thousands of other families through the distribution of emergency shelter kits and providing access to water and sanitation services.

The three-day Build Back Safer programme promotes the construction of disaster-resilient homes with a strong emphasis on hands-on training. Participants learn about sound construction techniques and choosing safe building sites.

Table-7 Roles of Organisations Concerned in Disaster Risk Governance

Disaster Risk Governance			Organisation		
			National Gov.	Local Gov.	Comm -unity
Framework	Legal Framework	Consolidating legal systems and instruments	◎		
	Policy and Plan	Mainstreaming DRR into strategic planning and development plans	◎	○	
Institutional Arrangement	Risk Communication	Strengthening institutional capacities for risk communication including information sharing and dissemination	◎	◎	◎
	Coordination and Collaboration	Strengthening institutional capacities for information sharing among departments and regional alliances	◎	○	
		Strengthening collaboration mechanisms among regional alliances and relevant departments	◎	○	
	Risk Evaluation and Assessment	Strengthening monitoring and evaluating system for hazards and disaster risks	◎	○	○
		Strengthening Disaster Loss and Damage Assessment (DLDA) and Post Disaster Needs Assessment (PDNA)	◎	○	○
		Strengthening Environmental Impact Assessment (EIA) and Land Use Regulation	◎	○	
	Capacity Development	Integrating national resources, institutional capacities and technical expertise	◎	◎	
		Strengthening capacity building for government staff and stakeholders to manage DRR	◎	○	○
Management of DRR Measures	Financing and Investing	Strengthening institutional mechanisms for financing and investing in effective DRR measures and its compliance	◎	○	
	Integration of DRR Measures	Strengthening integrated arrangements for reducing the underlying risk factors in various sectors for the advancement of sustainable development	◎	○	○
	Management of DRR Measures (Preparedness)	Strengthening institutional mechanisms for disaster preparedness for effective response including structural and non-structural measures	◎	◎	○
	Management of DRR Measures (Emergency Response)	Strengthening institutional mechanisms for emergency/consequence management	◎	◎	◎
	Management of DRR Measures (Recovery and Reconstruction)	Strengthening institutional mechanisms for recovery and reconstruction management to respond to post-disaster situation	◎	◎	○

(random order)

(legend symbol) ◎ **major role**
○ : **secondary role**

6.3 Financing and Investing

139. Sufficient proactive investment in disaster risk reduction measures within annual government budget

Budget and Investment

140. A society that is building resilience to hazards must do more than respond to and recover from each emergency as it occurs. Thus, enough budget and investment is to be secured proactively in DRR measures.

Cost for Pre-Investment in DRR Measures

141. The cost of pre-investment in DRR measures is, in general, lower than the cost of post-disaster response, i.e., the cost performance of the investment in advance is high[39]. Therefore, pre-investment is beneficial to sustainable development.

Different Strategies between Urban and Rural Areas

142. In the DRR scheme for Fiji[40], the strategy and scenarios for urban and rural areas are different. Namely, in urban areas emphasis is placed on land utilisation plans and the streamlining of infrastructure, whereas in rural areas emphasis is placed on non- structural measures such as early warning, awareness-raising and livelihood support.

Intensive Investment to Countermeasures against Urban Disasters

143. In Fiji, proactive investment in DRR measures that is commensurate with population concentration and social capital accumulation has hitherto been insufficient. Due to this imbalance between investment and the growth of cities and towns, urban disaster risk has been increasing. Thus, intensive investment is concentrated on the countermeasures against urban disasters as priority projects.

Implementation Priority for Structural Measures

144. To summarise the above, the implementation priority for structural measures is most urgent and critical for items in the Disaster Risk-I category in urban areas, followed by items in Disaster Risk-II category in urban areas and then by countermeasures for Disaster Risk-II items in rural areas. Structural measures are not being carried out for items in the Disaster Risk-III category for the time being. The implementation priority for structural measures is presented in Table-8.

Measures for Disaster Victims

145. Furthermore, special measures are secured for the disaster victims, such as economic aid, industrial activities and employment opportunities, to help them recover their life infrastructure and reclaim their living areas. The national and local governments should strive to secure the fiscal resources to pay for recovery and reconstruction.

---

[39] Cited from "IADB, IMF, OAS, and the World Bank: The Economics of Disaster Mitigation in the Caribbean Quantifying the Benefits and Costs of Mitigating Natural Hazard Losses, 2005"

[40] See "Table-3 in Sec. 3.1 and Table-8 in Section 6.3.

Funds, Subsidy Programmes, etc.

146. The Government Fund, the Prime Minister Relief Fund, the Contingency Fund, the Operational Fund and the Fiji National Provident Fund are all functioning in Fiji. In addition, 'Recovery and Reconstruction Subsidy Programme', 'Disaster Relief Programme', 'Collective Relocation Subsidy Programme', 'Funding Loan Programme', 'Disaster Moratorium Programme', etc. need to be established. Strong coordination of humanitarian aid will ensure efficient use of these funds[41].

Social Funds

147. Social funds[42] are block grants provided to communities in order to enhance community assets, such as community facilities and infrastructure, as well as services such as microfinance and micro-insurance. It may be the proper time to consider implementing the social fund system in Fiji.

Security and Protection Mechanisms Concerning DRR

148. The security and protection mechanisms concerning DRR containing a written description of the NDRRP are summarised in Table-9.

Introduction of Disaster Insurance

149. Consideration should be given in DRR measures to rewarding efforts and sacrifices by individuals or organisations in a disaster. Furthermore, disaster insurance could be introduced and would be designed to integrate the efforts of the governments and individuals.

Social Agreement on Cost of Disaster Risks

150. Finally, reinforcing the society's coping capacity naturally requires substantial cost, which comes from the economic surplus in the society or from external input. Therefore, the challenge is how to create economic surplus and how to attain external input and utilise it. It is also important to formulate social agreement on the fundamental question of how muchof the cost of DRR society and the individuals should pay.

Table-8 Implementation Priority for Structural Measures in Fiji

	Urban Areas	Rural Areas
Disaster Risk- I	Large	N/A
Disaster Risk- II	Medium	Small
Disaster Risk-III	N/A	N/A

Notes: Disaster Risk- I, IIand IIIare explained by reference to Table-3.

[41] See "Table-5 in Sec. 5.4: Finance Management Schemes for Disaster Resilience"
[42] Used "ADB Institute: Disaster Risk management in Asia and the Pacific, 2015" as a reference.

Table-9 Examples of Security and Protection Mechanisms on Disaster Risk Reduction

Safety Net	Stage	Example	Reference
Security Mechanism	Pre-Disaster	#68 Information Collection and Dissemination System	Numbers of the Example are coincided with the ones shown in "Action Items" in Table-11 (P. 63-81)
		#74 Timeline DRR System	
		#105 Progressive Relocation	
	During and Post-Disaster	#91 DRR Timeline System	
		#92 Emergency Medical Team	
		#93 Relief and Rescue Work, Evacuation Guidance and Traffic Operation	
		#95 Rescue and Relief Operation for Displaced People	
Protection Mechanism	Pre-Disaster	#41 Collective Relocation Subsidy Programme	
		#45 Disaster Insurance Programme	
		#46 Climate Based Insurance Programme	
	Post-Disaster	#39 Disaster Recovery and Reconstruction Subsidy	
		#40nDisaster Relief Programme	
		#42 Funding Loan Programme	
		#43 Disaster Moratorium Programme	
		#44 Disaster Protection Programme	

Success Story #7

Rural Housing Programme

Bukuya Village, May 2017

The overall aim of the rural housing programme, administrated by the Ministry of Rural and Maritime Development, National Disaster Management and Meteorological Services, is to eliminate homelessness in rural Fiji through the provision of affordable, durable and cyclone-resistant structures.

In an ongoing commitment to alleviate poverty while increasing standards of living in rural communities, the government has been supporting this project through the allocation of funds for rural housing assistance.

6.4 Preparedness

151. Strong process and coordination for preparedness are activated through structural and non-structural measures.

Structural and Non-Structural Measures

152. DRR measures can be roughly divided into those that are structural and those that are non-structural. DRR measures are prioritised separately for each of these two categories.

Key Structural Measures

153. Construction of DRR structures, improvement of the coping capacity, or the resilience, of the social system, and environmental protection are key structural measures, including:

- Flood control embankments;
- Flood control basins;
- Retention dams and underground dams;
- Drainage networks in cities and towns;
- Planting trees on mountain slope;
- Planting mangroves and constructing sea wall;
- Landslide countermeasure work;
- Safer schools;
- Safer hospitasl;
- Evacuation centres; and
- Multi-purpose community centres.

Measures beyond Acceptable Risks

154. However, such robust structures are not always enough in coping with a disaster, because a disaster event can cause damage that surpasses the anticipated maximum risk. When an abnormal external force above the acceptable risk occurs, the coping capacity residing in the society must be used. Thus, there is a need to develop software countermeasures, or non-structural measures, such as the streamlining of the social fundamentals (improvement of the agrarian system, maintenance of the real estate registration system, streamlining of the census registration system, etc.), fostering DRR education and local community solidarity and cultivating disaster culture.

DRR Measures within Industrial areas

155. The rapid growth of urban areas in Fiji has been accompanied by increased stress on hazardous material storage facilities, waste treatment plants and lifeline facilities . Fijian cities and towns have been undergoing transformation and densification as population and industries converge, hazardous materials and waste accumulate, and the lifeline expands and becomes more complicated. Thus, it is urgent to undertake DRR measures within industrial areas. In implementing this, it is necessary to assess the weaknesses and risks the facilities face and establish the approach for the assessment beforehand.

Non-Structural Measures

156. Priorities are not set for non-structural measures the way they are for structural measures. Instead, Fiji should ideally select the right non-structural measures for the right situation as circumstances demand, carefully considering disaster risks, regional characteristics and the effects of extent of countermeasures.

Lack of Regulatory Environment

157. An effective legal framework or regulatory environment yields vital DRR benefits. Laws are needed for building and infrastructure safety, land-use planning, industrial development, tourism development, environmental planning, waste treatment, etc. Regulations should cover applying full safe standards in public and/or private investment in buildings, infrastructure and economic developments.

Disaster Risk Assessment

158. Environmental impact assessments (EIA) are now
Mandatory for large-scale development projects. In addition, from the viewpoint of mainstreaming DRR, the responsibility for implementation of disaster risk assessment (DRA)[43] shall be established under the new NDMA to be reviewed. (See Fig.8)

Hazard Monitoring, Warning and Response Capacities

159. Strategic directions undertaken by Fiji to improve hazard monitoring, warning and response capacities and identifying the required actions needed to achieve goals outlined in the Sendai Framework includes:

- Establish implementation mechanisms for both the disaster loss-and-damage assessment (DLDA) and the post-disaster needs assessment (PDNA) that are to be conducted by the national government;
- Promote the regular conduct of disaster response exercises by communities and residents, including evacuation drills, training and the establishment of area-based support systems; and
- Strengthen liaison in the department in charge of inspection of infrastructure and DRR facilities that are deeply involved in operations and maintenance (O and M).

Disaggregated DRR-Related Data

160. Pre-existing disaggregated DRR-related data are coordinated and consolidated, thereby disaster risk governance and non-structural measures become activated by sharing data and information covering disaster victims, damages, lessons learnt, education management information, DRR facilities and design data for infrastructures, O and M data for infrastructures and DRR facilities, meteor-hydrological and earthquake data, etc.

Building Codes

161. The building codes are re-examined, updated and reviewed in terms of quake and wind resistance to incorporate current disaster risk and climate change, together with setting up site selection criteria and introducing a seismic and wind diagnosis system to ensure high levels of compliance with the regulations. It is also important to have in place a training system for architect engineers and homeowners involved in self build.

[43] Refer to "Annex-11: Glossary"

Support System for Business Continuity Plans

162. It is important to establish a support system including a training system for business continuity plans (BCPs) for the private sector to increase business resilience and productive assets. Since Fiji is a tourism-oriented country, BCPs for the tourism industry are crucial for continuing performance, and special attention should be paid to foreign tourists. As disaster cases of other countries clearly indicate, foreign tourists are especially vulnerable to a hazard, so foreign tourists should be treated as disadvantaged at the time of a disaster, similar to persons with disabilities (PwDs) and the elderly.

Awareness Rising

163. Continuous awareness-raising will highlight to the public, how pollution and environmental degradation increase disaster risks.

Publicity of Importance of DRR

164. Moreover, it is crucial to publicise the importance of DRR to enable the present mechanisms to effectively work and to incorporate these measures into daily life.

No Regrets Strategy

165. DRR measures would be worthwhile, as many of them are practices that are beneficial even in the absence of disasters. These are often referred as 'no regrets strategy'[44].

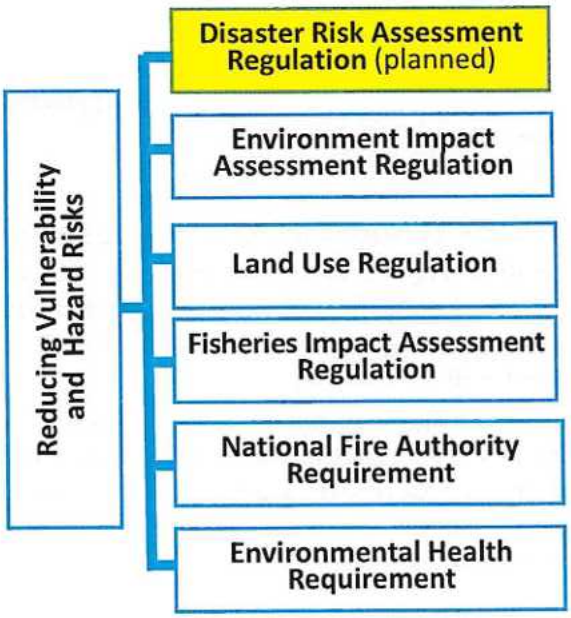


Fig.8 Recommended Development Regulation Mechanism for Fiji

[44] Refer to "Annex-11: Glossary"

6.5 Emergency Response

166. **Well-coordinated humanitarian emergency response shall be executed.**

Disaster Risk Information System

167. Real-time disaster information plays a decisiverole in emergency response. It therefore should be streamlined to cover the disaster risk information system (DRIS) utilizing ICT. it is especially crucial to enhance the level of EWS for the evacuation of residents.

DRIS Sub-Systems

168. The DRIS includes the following sub-systems: information collection system; information analysis system; information dissemination system; and information management system. (See Fig.9)

Implementation of DRIS

169. It is imperative to implement the DRIS in Fiji consisting of the four sub-systems, whose functions should have almost the same levels of information accuracy.

Action Items designated as DRIS in NDRRP

170. The NDRRP put forth a proposal of 122 action items contained in Table-11 from Page 63 to 81, showing 20 DRIS-related action items. The classification of sub-systems in the DRIS is shown in Table-10. It is necessary for DRIS system planning to make the function of each sub-system clear.

Mainstreaming DRIS

171. Since the DRIS can be utilised not only for predicting and estimating damage by geographical information system (GIS), but also for transmitting real-time disaster information, this system is particularly effective just after disasters, when manpower is scarce and the ability to collect and analyse information is low. The DRIS should be streamlined as a system with redundancy.

Dissemination of Hazard Information

172. It is very important to disseminate the information collected through the DRIS rapidly and accurately to DRR-related agencies and affected residents. The system is designed to disseminate hazard information directly to agencies and residents by way of short message service (SMS) and the like.

Establishment of Institutional Reporting Arrangements

173. It is also important to establish institutional reporting arrangements for relevant organisations because it is not easy to keep reporting to the NDMO, divisions, districts and sectors during an emergency.

Tacit SOPs

174. As for emergency response, although each DRR agency has tacit SOPs, many of them are not clear. It is important for SOPs to clarify the rescue-and-relief principle in the document. Furthermore, after setting the timeline [45] of emergency response for the agencies, the emergency response is established in a practical way.

Supporting Capacities in DRR

175. Partnerships play an important role in harnessing the full potential of disaster risks, supporting institutional capacities in DRR and improving the coping capacity, or the resilience, of individuals, communities and the country.

Fiji Cluster System

176. The Fiji Cluster System is the primary function for ensuring strong humanitarian response, coordination of different stakeholders and information sharing responsibilities during emergency situations. The sectoral clusters will be strengthened with inclusion of all relevant stakeholders in regular meetings and reporting to the inter-cluster and the NDMO. In addition, the existing collaboration and coordination modalities with regional (SPC) and international mechanisms (UN Office for the Coordination of Humanitarian Affairs (UNOCHA), UN Disaster Assessment and Coordination (UNDAC), etc.) will be effectively utilised. Finally, the Protection Code of Conduct for Humanitarian Workers,as employed during Tropical Cyclone Winston, would be used from now on.

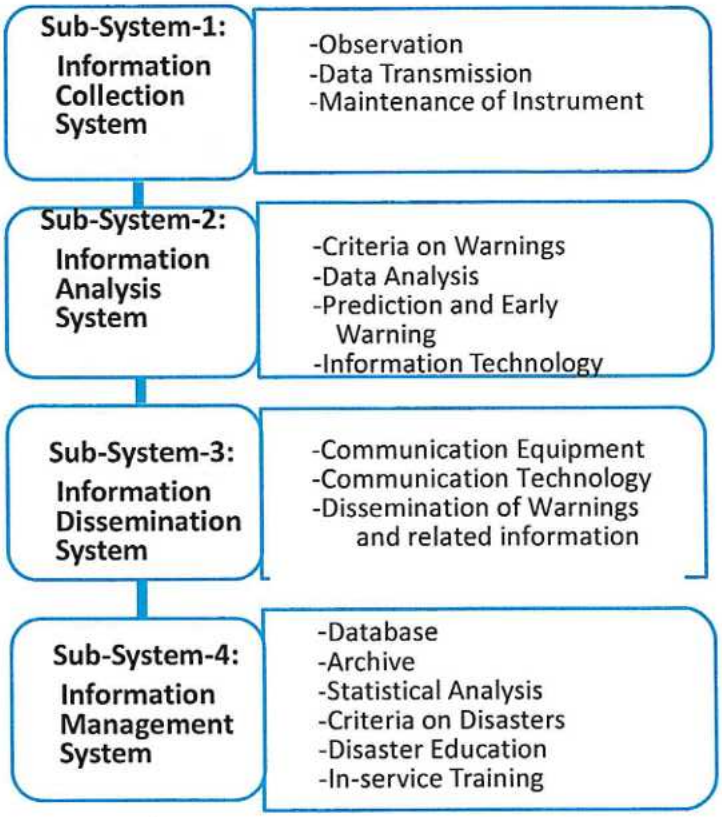


Fig.9 Sub-Systems of Disaster Risk Information System

[45] Refer to "Annex-11: Glossary"

Table-10 Category Classification of Sub-Systems in Disaster Risk Information Systems

Action Item Table-11 (Page 63-81)	Disaster Risk Information System (DRIS)			
	Sub-System-1 Information Collection	Sub-System-2 Information Analysis	Sub-System-3 Information Dissemination	Sub-System-4 Information Management
#28 Tsunami Warning and Cancellation		O	O	
#30 Demarcation on DRR Operation		O		
#65 Multi-Hazard Early Warning System	O	O	O	O
#66 Standardisation of Telecommunication Services			O	
#67 Emergency Communication Network			O	
#68 Information Collection and Dissemination System	O		O	
#69 Tsunami Siren Networks and Evacuation Drills		O	O	O
#70 Geographic Information System (GIS)	O	O		
#74 Timeline DRR System	O			O
#75 Warning Criteria on Disaster Risks		O		O
#76 Criteria for Power Transmission/ Distribution Line Routes		O		O
#77 Storm Surge Prediction and Coastal Inundation Prediction System	O	O	O	O
#78 Catchment Monitoring and Flood Prediction Systems	O	O	O	O
#79 Meteorological Drought Prediction System and Forest Fire Watch System	O	O	O	O
#80 Survey, Observation and Gauging of Hazards	O			O
#81 Consignment Observation System for Hydro-Meteorological Observation	O			O
#82 Colour Cording System		O	O	
#85 Multi-Hazard Risk Mapping	O	O		O
#88 Consolidation of DRR Database Systems	O		O	O
#122 Public Emergency Broadcasting System			O	

6.6 Recovery and Reconstruction

177. Build Back Better (inclusion of disaster risk governance in recovery and reconstruction)

Objectives of Recovery and Reconstruction

178. Following emergency response, it is vital during the recovery stage to provide livelihood support to disaster victims and resume productive activities as much as possible. The security and protection systems are established in advance as a safety net for this purpose. By the same token, the Fiji Cluster System should be streamlined on an ongoing basis. At the reconstruction stage, a national reconstruction plan complying with the specific national disaster should be formulated and issued. Building back better (BBB) for infrastructure, houses and production facilities would then become the goal of this stage, based on the plan.

Living Conditions of Tents or Shelters

179. The affected people and their livelihood are confined to tents or shelters, which are not ideal living conditions. In fact, there are cases in which more people die during a prolonged stay in a tent or shelter than in the actual disaster event. Therefore, the number of the shelters should be increased and the security and sanitary conditions improved.

Activities by Volunteers, Private Organisations and Foreign Aids

180. Activities of volunteers, private organisations and foreign aid organisations to support disaster victims at the recovery and reconstruction stages must be acknowledged and coordinated. Administrative agencies strive to support such activities while respecting their autonomy.

Public Emergency Broadcasting System

181. In addition, for smooth recovery and reconstruction, the public emergency broadcasting system consisting of public radio and community radio should be used to convey information to disaster victims quickly and accurately. This system will provide information that is fundamental for autonomous decision-making in damaged areas.

Society Back Better

182. Although it is unfortunate, the occurrence of a disaster could paradoxically provide opportunities to implement far-reaching measures for building the society back better and making the country and the affected areas more resilient to disasters. Effective countermeasures include reviewing land-utilisation plans, reviewing building codes and streamlining infrastructure.

National Reconstruction Plan

183. At the reconstruction stage, it is important to conduct both the PDNA and the DLDA and develop and implement a national reconstruction plan based on the outcomes of the two assessments. In this regard, it is also crucial to attain BBB by re-examining the devastation and attempting to overcome the social and economic vulnerabilities that were exposed.

Raising Consciousness on Reconstruction

184. Reconstruction from a disaster is not confined only to the afflicted people and area, but must be shared by the entire nation. Thus, it is crucial to generate broad understanding of the reconstruction process by clarifying the objectives of reconstruction, disseminating the good BBB practices and utilising the lessons learnt.

6.7 Knowledge and Information

185. **Improved knowledge, information, attitudes and practices among people on how to response to and reduce disaster risk.**

Traditional Wisdom, Customs and Tacit Knowledge

186. Humankind has lived with disasters from the beginning of time, and our ancestors developed wisdom that enabled them to cope with disasters and survive. It is crucial to take advantage of the traditional wisdom, customs and cultural knowledge that exist in communities, which can constitute valid lessons on non-structural measures.

Lesson Learnt from Disasters

187. The lesson learnt from any disaster is important because it can minimise further damage and help the afflicted individuals and society recover quickly.

Traditional Techniques Relating to DRR

188. Traditional techniques relating to DRR are alive in their original culture. For example, traditional Fijian bures have the specific structure to cope with the wind load of a cyclone, and it is easy to repair them even if they are damaged. The core of the traditional techniques is not merely the mechanical rationality of traditional structures but also the wisdom to avoid living in hazardous areas.

DRR Education

189. It should be borne in mind that it is impossible for administrative agencies to individually issue concrete orders to residents because each disaster has its own specific situation. On the other hand, those who are facing the disaster must be able to understand the situation, judge what actions will improve their chances for survival and make proper decisions. Thus, DRR education is implemented to cultivate disaster information literacy.

Culture of Community Volunteering

190. Aristotle once said, '*humans are social animals*'. This means everyone must have the sense of public morality. The security and safety of a society depend not on the self-interest of individuals but on the cooperation of every member of the society. The spirit of mutual aid will be required to alleviate property damage or physical and mental stress at the time of a disaster, , and it is important to socialise and institutionalise such a spirit and culture. Therefore, it is important to cultivate the culture of community volunteering for DRR within our Fijian communities and to encourage these communities to volunteer to assist other neighbouring communities that need assistance. The final outcome would be to encourage these community volunteers to volunteer outside their communities and serve as volunteers in a regional and national capacity. These volunteers will also share

information on what they are doing in their communities to the other communities in which they they are volunteering, thus helping increase resilience and reducing risk. These volunteers in both urban and rural communities can volunteer to government departments or volunteer organisations such as the Government volunteer scheme and the Fiji Red Cross Society.

Tree-Planting Campaign

191. In concert with Green Growth Framework, the 'Tree-Planting Campaign' is waged to encourage voluntary tree and/or mangrove planting activities conducted as a part of the school curriculum and corporate social responsibility (CSR). This is the movement to plant trees on bald hills in the mountainous areas in the Western Division of Viti Levu and other areas, together with planting mangroves on the coast. This green activity is beneficial not only for environmental conservation but also for DRR, because planting trees and/or mangroves can mitigate floods, landslides, coastal erosion, storm surges and so forth.

Regular Roundtable Meetings on CCA/DRR

192. Regular round-table meetings should be convened to discuss CCA/DRR among relevant agencies, UN organisations, donors, CROPs, NGOs, universities, churches and the mass media such as newspapers, TVs and radio stations.

Improvement of CCA/DRR Broadcast Programmes

193. CCA/DRR broadcast programmes can be improved with cooperation of relevant agencies, which will help raise public awareness and understanding and disseminate disaster risk, hazard and disaster information. This wilol stimulate a culture of prevention and encourage strong community involvement in DRR activities and public consultations at all levels of society. In addition, relevant agencies should give advice on cut-in DRR information inserted in the television footages.

Overall Picture on DRR

194. Since DRR measures cover a wide variety of fields, from setting measures against cyclones to responding to tsunamis, and each field requires a different set of measures, it is difficult to draw up an overall picture of DRR. However, without perspective, even if long-term projects have been established individually, their contents would be incomplete. Thus, it is crucial for Fiji to draw up the overall picture on DRR and share it.

Sample of Overall Picture of Flood Countermeasures

195. Fig.10 shows the flood countermeasure items as a part of the overall picture of DRR measures. Enhancing the level of all the items, as in the figure, leads to an improvement in the effectiveness of flood countermeasures. While EWS and DRIS are important, they are only one sub-system within the total DRR system.

DRR White Paper for Fiji

196. Finally, from the viewpoint of an overall perspective on DRR, to the government should develop a *'Disaster Risk Reduction White Paper for Fiji'*, which would cover disaster situation reports and statistical data on damage and loss, information on hydro-meteorological and geophysical phenomena, information on science and technology, etc. The white paper would also cover the status and issues of disaster risk governance and DRR measures, specifying the budgetary allocations for the DRR programmes of the line ministries.

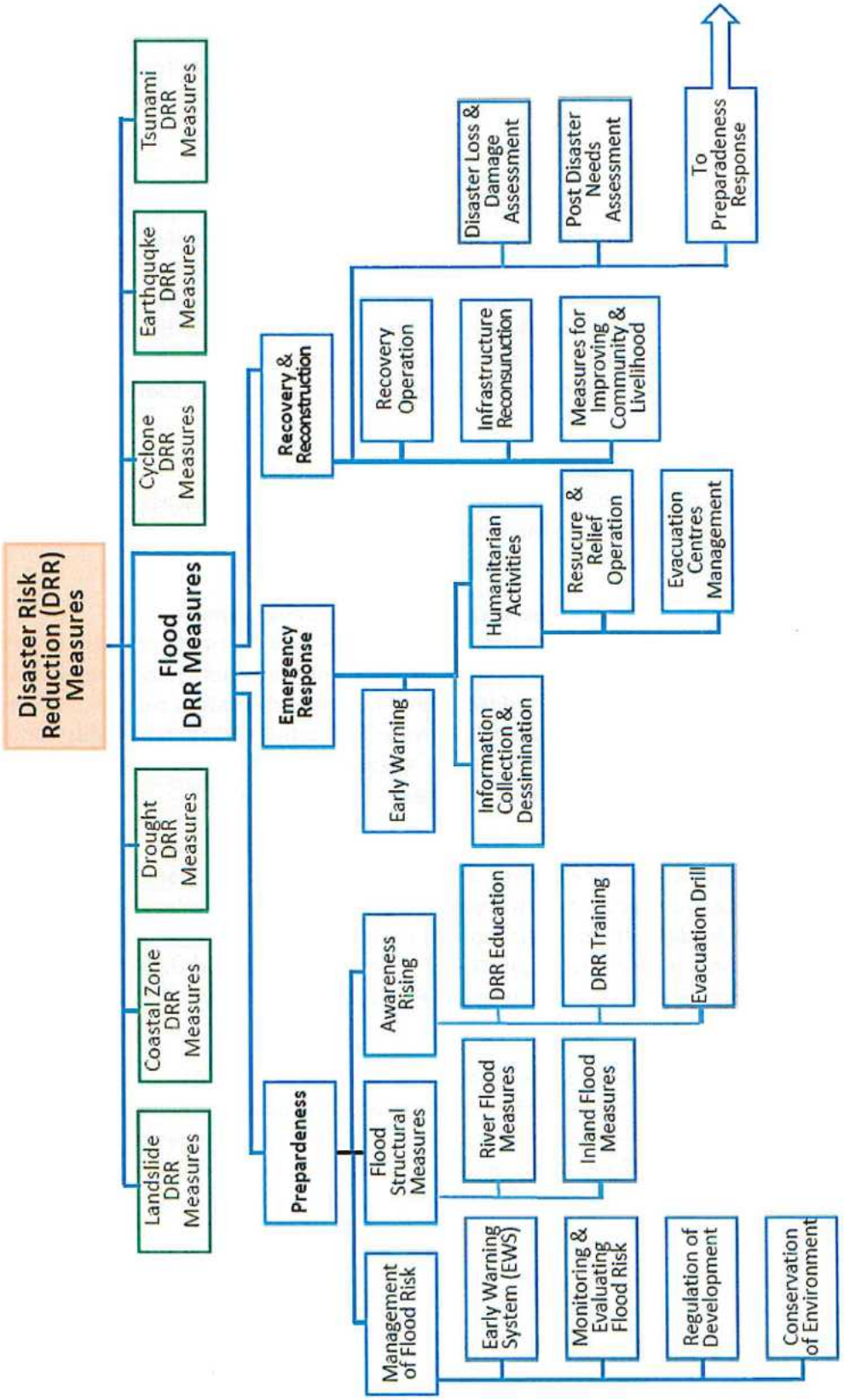


Fig.10 Framework of Disaster Risk Reduction Measures for Fiji in Case of Flood Disaster Risk Reduction Measures

7. Policy Monitoring and Review

7.1 Policy Monitoring

Structure of Monitoring System

197. Collaboration between the Supporting Agencies and the Implementing Agencies is required in the implementation of the action items stated in the previous chapter. At the same time, the NDMO, the secretariat of the NDRRP, and a task force should make every effort to ensure that each of the action items can be implemented steadily and smoothly. In some cases, it would be necessary for the NDMO to give proper advice to the relevant organisations or to monitor the progress of the implementation. Although the action items have been established in the NDRRP, the NDMO should not leave everything to the Supporting Agencies and the Implementing Agencies, only waiting for the results.

Disaster Risk Reduction Monitoring Unit

198. Therefore, it is indispensable to form an exclusive task force for the NDRRP in the NDMO and to secure the budget so that the action items can be achieved. Thus, it is proposed to establish a 'Disaster Risk Reduction Monitoring Unit (DRR Monitoring Unit)' in the NDMO. (See Fig.11)

Disaster Risk Reduction Monitoring Committee

199. At the same time, it is proposed to establish a 'Disaster Risk Reduction Monitoring Committee (DRR Monitoring Committee)'[46] under the National Disaster Management Council as the organisation to guide the DRR Monitoring Unit in the wider perspective. These organisations could ensure the implementation and achievement of the policy by the year 2030.

Obligations of DRR Monitoring Committee and DRR Monitoring Unit

200. The obligations of the DRR Monitoring Committee and the DRR Monitoring Unit are to:

- Monitor the seven outcome targets in the Sendai Framework (Fig.1) with the Global Indicators designated by the UNISDR (Annex-2) and to report the outcomes achieved relating to the DRR in Fiji to the UNISDR by way of the Cabinet by the year 2030 ; and
- Holistically monitor the implementation situation and achievement of each of the 122 action items(Table-11), to report them in an 'Annual Monitoring Report' and to report the achievement of policy strategies of the plan to the National Disaster Management Council as a 'Mid-term Review' by the year 2024/2025 and a 'Review on Policy Strategies' by the year 2030. In addition to the monitoring of each action item, efforts should be made for close communication between focal points designated by the disaster service liaison officers (Fig.3), the Implementing Agencies, and the DRR Monitoring Unit.

[46] The DRR Monitoring Committee should be designated under the new 'National Disaster Management Act' to be the reviewer.

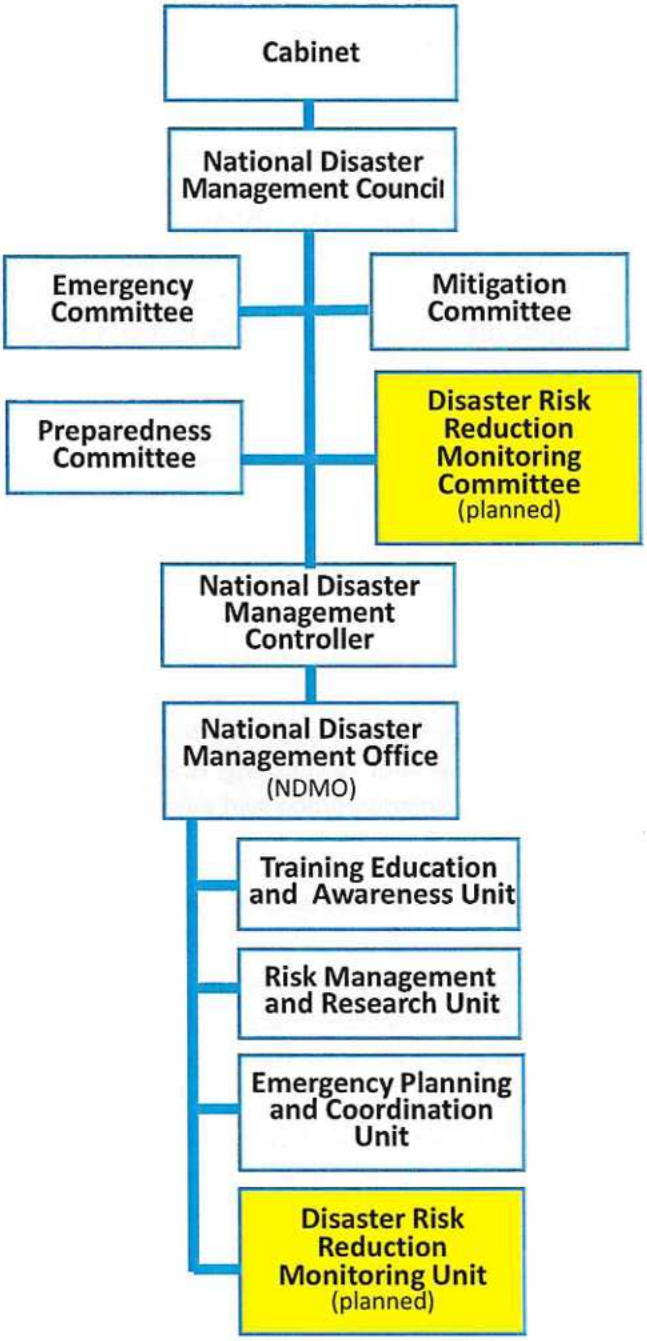


Fig.11 Proposed DRR Monitoring System

7.2 Policy Review

Three NDRRP Phases

201. Since the NDRRP covers a long term (from the year 2018 to 2030 per calendar year), this term is divided into three phases: Phase- Ⅰ covers first five years from 2018 to 2022; Phase- Ⅱ midterm four years from 2023 to 2026; and Phase-Ⅲ final four years, from 2027 to 2030.

Annual Monitoring Report

202. As for the outcome of the activities of the DRR Monitoring Committee and the DRR Monitoring Unit, along with submitting the 'Annual Monitoring Report' in the last month of each phase, the outcome of each phase is to be reported. In addition, both the 'Mid-term Review' by 2024/2025 and the 'Final Report' on the overall outcome of activities titled 'Review on Policy Strategies' by 2030 are to be drawn up and submitted to the Cabinet to consider the achievement over the 12-year period and the way forward for Fiji with regard to DRR.

Timeline of Monitoring and Review

203. Fig.12 indicates the timeline of the monitoring and the review.

Success Story #8

Construction of Kumi Village Sea Wall

Kumi Village Sea Wall, December 2016

The Fiji Government's commitment to climate action will ensure that Fijians are protected from climate change impacts such as sea level rise. The government has allocated financing towards building community resilience against climate change.

One successful project was the construction of the Kumi village seawall at the cost of FJD 350,000. Kumi village, like many vulnerable communities in Fiji, has been exposed to coastal erosion and inundation brought by storm surges and sea level rise.

Fig.12 Monitoring and Review Timeline per calendar year

Success Story #9

Relocation of Villages in Fiji

Tukuraki Village Relocation Project site, Ba

The Fiji Government has deemed more than 800 communities across the country to be at risk to the impact of disasters and climate change, with many of these likely to need relocating over the coming years.

In 2014, the Fiji Government relocated the community of Vunidogoloa in Vanua Levu, Fiji's second largest island. The community was moved to higher ground because seawalls were no longer able to prevent flooding and coastal erosion—a move that followed nearly ten years of planning.

Landslide disasters due to tropical cyclones have struck Tukuraki Village, which is located in the highlands on Viti Levu, many times. To conquer the difficulty, the Tukuraki Village Relocation Project was developed, and in 2017, eleven houses were built in a new and safer site with the evacuation centre designed to withstand up to a Category 5 cyclone. These are typical examples of the Build Back Better (BBB).

8. Policy Implementation

Development and Progress of Action Plans

204. The Implementing Agencies are required to develop 'action plans' in accordance with the 'Policy Strategies in Chapter 6' of the NDRRP, which must be conferred by the DRR Monitoring Unit and accepted by the DRR Monitoring Committee. The Implementing Agencies will report on the progress of the plans to the DRR Monitoring Committee on an annual basis. The success of the NDRRP depends on how the Implementing Agencies tackle the action items.

Consideration of Action Items

205. Each Implementing Agency ought to concretise the action items taking into consideration the basic policy of the Supporting Agencies, establish the action plan, secure a task force and budget and implement the action plan according to the timeline.

Monitoring Progress of Implementing Action Plans

206. Since the NDRRP requires long term effort, it is important to monitor progress in implementing the action plan of each Implementing Agency.

Fiji as 'Sendai Champion'

207. This monitoring follows the Indicators of the Sendai Framework. Fiji achieved a great deal in DRR at the time of Tropical Cyclone Winston 2016 and was awarded the honour of *'Sendai Framework Mortality Reduction Champion'*. The NDRRP seeks to make Fiji *'Sendai Champion'* in both name and reality by the year 2030 through the attainment of the NDRRP.

Roadmap of Action Items

208. The roadmaps of action items that the Supporting Agencies and the Implementing Agencies should undertake are as follows (Fig.13).

209. *Roadmap for each Supporting Agency*

- To collaborate with the Implementing Agencies in making action plans with designated focal points;
- To collaborate with the Implementing Agencies in implementing action plans;
- To collaborate with the Implementing Agencies in reporting action plans; and
- To report the result of action items to the DRR Monitoring Unit.

210. *Roadmap for each Implementing Agency*

- To designate a focal point on each action item;
- To draw up the action plan regarding the implementation of action items within the year 2018;
- To submit the annual progress report regarding the implementation and the result of action items to the DRR Monitoring Unit;
- To submit the mid-term review by 2024/2025; and
- To submit the final report of action plan to the DRR Monitoring Unit in the year 2030.

Flow of Progress Report and Review

211. Fig.13 illustrates the flow of the progress report and the review on policy strategies regarding the DRR Monitoring Committee, the DRR Monitoring Unit, the Supporting Agencies and the Implementing Agencies.

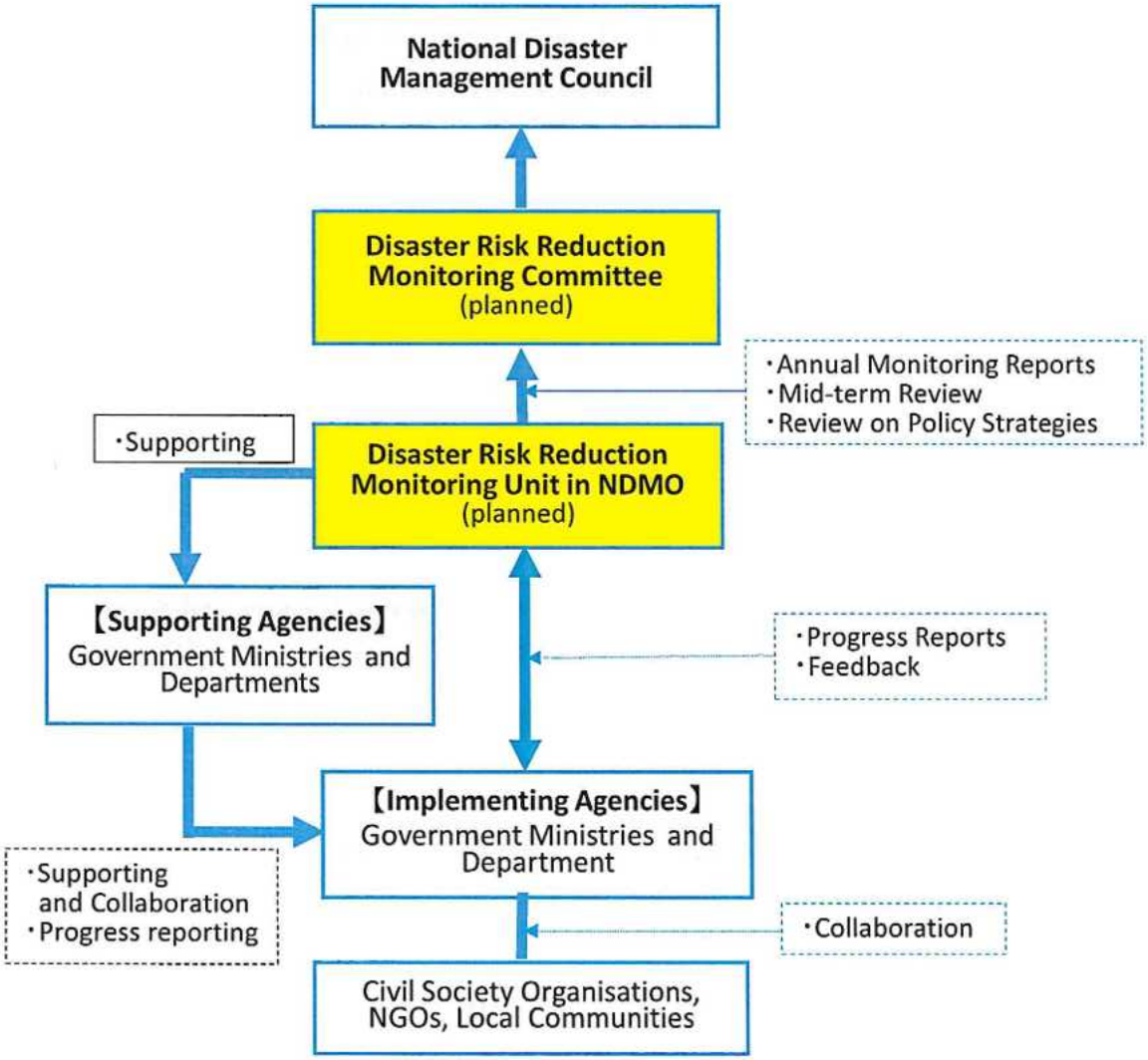


Fig.13 Progress Reporting Hierarchy

9. Action Items for Supporting and Implementing Agencies

Table-11 Progress Schedule Chart for Action Items for Supporting and Implementing Agencies

Note-1: The abbreviations of the Supporting Agencies and the Implementing Agencies are summarised in this table.

Note-2: Global Target-E for the Sendai Framework is due in **2020** and other Global Targets are due in 2030. (See "Annex-2: Global Targets of the Sendai Framework")

#	Action Item	Phase-1 (2018 '20 '22)	Phase-2 ('23 '26)	Phase-3 ('27 '30)	Supporting Agency	Implementing Agency
	Policy Strategy-7.1: Mainstreaming Disaster Risk Reduction					
1	Mainstreaming CCA/DRR Promote mainstreaming CCA/DRR in policies, strategies, plans, laws and programmes of all relevant sectors, considering climate change scenarios and impacts of disaster risks in Fiji				AGO, Economy, Disaster and **all key Line Ministries**	**All key Line Ministries**
2	DRR Monitoring Committee and DRR Monitoring Unit Establish a new DRR Monitoring Committee under the National Disaster Management Council and a new DRR Monitoring Unit in the NDMO to follow-up, periodically assess and report the progress on the action items of the NDRRP				PMO, AGO, Economy, Infrastructure	NDMO
3	Action Plans for DRR Committees Establish action plans for the existing DRR Committees consisting of the Emergency Committee, the Mitigation Committee, the Preparedness Committee and the DRR Monitoring Committee (planned in Chapter 8) to effectively function on a regular and systematic basis in the field of coordination and directional movement concerning DRR				PMO, Infrastructure	NDMO
4	Overall Picture of CCA/DRR Measures Construct an overall picture on CCA/DRR measures and visualise it, including the linkages and coordination between government agencies				Economy, Infrastructure	NDMO
5	Administrative Functions of MORM, MODM and MOLG Develop a plan for unifying the administrative functions of the MORM, the MODM and the MOLG to make the disaster management practical and effective				PMO, AGO, Economy, Local, Infrastructure	SPD TCP NDMO

6	Institutions among NDMO, FMS, MRD and Environment Realign institutions among the NDMO (disaster management), the FMS (hydro-meteorological information), the MRD (earthquake, tsunami and landslide information and the Ministry of Waterways and Environment (environmental information) to make the disaster risk information system (DRIS) practical and effective														PMO, AGO, Lands, Infrastructure, Environment	SPD NDMO MRD
7	Administrative Functions of Waterways and NDMO Develop a plan for unifying the administrative functions of the Ministry of Waterways and the NDMO to foster practical and effective structural measures against flood and storm surge disasters														PMO, AGO, Economy, Infrastructure, Waterways	SPD NDMO Waterways
8	Ministry of Foreign Affairs as One-Window Agency Realign the National Disaster Management Council and the National Emergency Operation Centre to designate the Ministry of Foreign Affairs as the one-window agency to strengthen coordination, funding mechanisms and humanitarian activities supported by foreign aids in case of a national disaster														PMO, AGO, Foreign, Infrastructure	NDMO Foreign
9	Direct Dissemination of Hazard Warnings from FMS and MRD to Mass Media Review the existing Natural Disaster Management Act 1998 to directly disseminate warnings and information on disaster risks from the directors of the FMS and the MRD to the mass media														Infrastructure, Lands, Women	NDMO FMS MRD
10	National DRR Action Plan and SOPs Develop a National DRR Action Plan and review the SOP which are aligned with the NDRRP and the National Disaster Management Act reviewed (new NDMA)														AGO, Economy, Infrastructure, Local	NDMO SPD
11	Local DRR Action Plans and SOPs Develop Local DRR Action Plans and review SOPs in all the divisions which are based on the NDRRP and the new NDMA														AGO, Economy, Infrastructure, Local	NDMO CTC Commissioner-Offices

12	<u>Disaster Risk Assessment Regulation</u> Impose a disaster risk assessment (DRA) regulation under the new NDMA to obligate large-scale development projects in the same manner of the environmental impact assessment regulation, the fisheries impact assessment regulation and the NFA requirement, establishing the method of disaster risk evaluation and formulating an operational manual for the DRA														AGO, Economy, Lands, Waterways, Infrastructure, Industry, Agriculture, i-Taukei, Local, Environment, Health, Fisheries, Education, Communication	SPD NDMO
13	<u>Investment Strategies on CCA/DRR in Urban Areas</u> Develop investment strategies on CCA/DRR in urban areas, considering existing investment plans on water, waste, road, energy, river and industrial plants and so forth														AGO, Economy, Rural, Local, Infrastructure, Waterways	SPD TCP
14	<u>Infrastructure Construction Plans on Ports Areas</u> Develop infrastructure construction plans focused on around ports and harbors and their ambient areas														AGO, Economy, Rural, Local, Infrastructure	SPD TCP
15	<u>Maintenance and Repair Plan</u> Develop and coordinate maintenance and repair plans considering DRR, which are to be attached to infrastructure construction plans, because maintenance and repair are essential for long-life operation of infrastructure and structural objects														PMO, AGO, Economy, Infrastructure	FRA
16	<u>Container Arrangement Plan</u> Develop a container arrangement plan to stock seeds and planting materials for the protection of livelihoods and productive assets for farmers after disasters. The plan should include the provision of training and tools for farmers.														AGO, Economy, Agriculture	Agriculture
17	<u>Land-Use Plans and/or Forest Established Plan</u> Strengthen and improve land-use plans and/or a forest established plan for a target area in line with the DRA regulation (planned in #12)														AGO, Economy, Rural, Industry, i-Taukei, Forests, Environment, Lands, Agriculture	TLTB Forests Agriculture

18	Environment Management Plan Develop an environment management plan to strengthen the sustainable use and management of ecosystems and implement integrated environmental and natural resources management including DRR														AGO, Economy, Local, Industry, Fisheries, Forests, Rural, Water, Agriculture, Waterways	Environment
19	Government-Led Enterprise Plans Develop government-led enterprise plans designated as CCA/DRR projects in disaster-prone areas, including ones of plantation agriculture, forest cultivation, mangrove plantation, etc.														AGO, Economy, Rural, Agriculture, Forests, Fisheries, Environment, Employment	Agriculture Forests Fisheries Environment
20	Business Continuity Plans Establish a support mechanism including a training system for instituting business continuity plans (BCPs) for private sector to increase business resilience and productive assets. BCPs should ensure the mainstreaming of DRR into business models and practices														Economy, Industry, Employment, Rural	SPD Industry
21	Fiji Resort Prepared for Disaster Risk Create a promotional activity called 'Fiji resort prepared for DRR'. Since disaster risks are sensitive to foreign tourists, the special BCP is to be promoted in the tourism industry which features DRR approaches and make up and disperse an emergency response manual														AGO, Economy, Industry, i-Taukei, Forests, Rural	Industry TLTB
22	Review of National Laws and Procedures Review and strengthen the national laws and procedures on international cooperation for humanitarian activities and the Fiji Cluster System at regular intervals														AGO, Economy, Foreign, Rural	Foreign
	Policy Strategy-7.2: Governance															
23	Technical and Scientific Capacity Strengthen technical and scientific capacity to utilise and consolidate existing knowledge and to develop and apply methodologies and models to assess disaster risks, vulnerabilities and exposures to all hazards in Fiji														Lands, Waterways, Infrastructure, Industry, Agriculture, Fisheries, Local, Environment, Health, Communication	NDMO FMS MRD

24	Building Codes Re-examine, update and review the building codes in terms of quake and wind resistance to adopt to current disaster risks and climate change, together with setting up site selection criteria, introducing a seismic and wind diagnosis system and a training system for architect engineers and builder	AGO, Economy, Health, Local, Infrastructure, Rural, Defense, Industry, Education, FIE	Health Local-Housing NDMO
25	Jurisdiction over Building Codes to be shifted from MOHM to MOLG Consider the relevant acts for the jurisdiction over the building codes. The jurisdiction over it should be shifted from the MOHM to the MOLG	PMO, AGO, Health, Local, Rural, Infrastructure	Health Local-Housing
26	Coordination Mechanism on Duplication of DRR Programmes and Projects Develop a coordination mechanism on duplication of DRR programmes and projects, such as early warning systems, various trainings and volunteer works in communities and so forth, promoting the effective use of the PDN (Pacific Disaster Net) calendar and the like	Economy, Infrastructure	SPD NDMO
27	Institutional Reporting Arrangement Establish an institutional reporting arrangement on national and local disaster risks and emergency responses	Infrastructure, Local, Industry	NDMO
28	Tsunami Warning and Cancellation Review the relevant acts for the jurisdiction over the declaration of both the tsunami warning and the tsunami warning cancellation. The jurisdiction over them shall be shifted from the NDMO to the MRD	PMO, AGO, Infrastructure, Lands	NDMO MRD
29	Early Humanitarian Operations and Compliance Strengthen the roles of the RFMF, the FPF, the NFA and the FCS to take early humanitarian operations and check compliance on DRR	Infrastructure, Defense	NDMO RFMF NFA

30	Demarcation concerning DRR Operations Set up demarcation concerning disaster risk governance among central government, local governments and communities, and contain a written description of the demarcation in the new NDMA, making the lines of responsibility clear	AGO, Economy, Infrastructure, Local, Women	TCP NDMO
31	Capacity Building for Local Government Officers Strengthen capacity building on CCA/DRR for local government officers to tackle the various problems at the local level	Infrastructure, Local, Women	NDMO Local
32	Training Civil Servants Train civil servants to support works for protecting vulnerable group, who are senior citizens, children, persons with disabilities, pregnant mothers, etc. by use of search and support equipment	Health, Women, Defense	Health Women
33	Training of DRR Trainers Train DRR Trainers at the national, local and community levels	Infrastructure, Local	NDMO
34	Cooperation Including South-South Cooperation Promote cooperation including the south-south cooperation to transfer the know-how on CCA/DRR obtained in Fiji to other developing countries	AGO, Foreign, Infrastructure, Communication	Foreign NDMO
35	Professional Engineers in River Engineering Engage engineers in river engineering who can make river plans and/or design structural measures on river control	Waterways, Infrastructure	Waterways
36	Experts in Hydrology Engage experts in hydrology who can manage observations and analyse hydro-meteorological data for DRR plans and/or measures	Waterways, Infrastructure	FMS Waterways

	Policy Strategy-7.3: Financing and Investing		
37	Overall Picture on Proposed Financing and Investing Programmes Construct an overall picture on proposed financing and investing programmes detailed from #38 to #50 listed below to promote safety net mechanisms such as disaster risk transfer and insurance, risk sharing and retention, and financial protection for both public and private investment. The Programmes are applied to proper stage of the disaster risk reduction cycle (DRRC)	PMO, Economy, Foreign, Rural, Women, Employment	Economy
38	Contingency Fund and Prime Minister's Recovery Fund Strengthen the contingency fund and the prime minister's recovery fund at the stage of emergency response and recovery based on the BBB-principle	PMO, Economy, Foreign, Rural, Local, Health, Employment, Women	Economy Foreign
39	Disaster Recovery and Reconstruction Subsidy Programme Strengthen a disaster recovery and reconstruction subsidy programme for victims affected by disasters	PMO, Economy, Foreign, Rural, Fisheries, Agriculture, Women, Employment	Economy Foreign Agriculture
40	Disaster Relief Programme Establish a disaster relief programme for the reduction of poverty as durable solution at the post-disaster stage to empower and assist people disproportionately affected by disasters	PMO, Economy, Foreign, Women, Employment, Forests, Rural	Economy Foreign Women
41	Collective Relocation Subsidy Programme Establish a collective relocation subsidy programme for residents in hazardous areas such as coastal erosion hazard and land slide hazard,	PMO, Economy, Foreign, Rural, i-Taukei, Lands, Employment, Local, Women	Economy Foreign TLTB, Women
42	Funding Loan Programme Establish a funding loan programme to support disaster victims by the central bank for imperative need	PMO, Economy, Foreign, Rural, Local, Employment, Women	Economy Women

43	Disaster Moratorium Programme Establish a disaster moratorium programme as special measures to give disaster victims more time for paying tax and loan and hire-purchased items														PMO, Economy, Foreign, Women	Economy Foreign Women
44	Disaster Protection Programme Strengthen a disaster protection programme which supports livelihoods and productive assets including livestock, working animals, tools and planting materials in disaster-prone areas														Economy, Agriculture, Employment, Foreign	Economy Agriculture
45	Disaster Insurance Programme Establish a disaster insurance programme for disaster victims for the purpose of offering them livelihood assistance														PMO, Economy, Foreign, Rural, Women, Employment, Industry	Economy Foreign Industry
46	Climate Index Based Insurance Programme Establish a climate index-based insurance programme for returning premium to drought victims on the basis of the amount of rainfall in a given period														PMO, Economy, Foreign, Agriculture, Environment, Infrastructure, Water, Women	Economy Agriculture FMS NDMO
47	Method for Allocating Public Donations Establish a mechanism for allocating public donations for DRR-use to relevant organisations and develop its guideline														Economy, Foreign, Infrastructure, Women	Economy NDMO
48	Price Control Programme on Building Materials Establish a price control programme on building materials equipped with price control mechanisms to prevent inflated price of them														PMO, Economy, Foreign, Forests, Infrastructure, Industry, Rural, Local, i-Taukei	Economy Infrastructure Local-Housing
49	Specifications of Building Materials Design specifications of building materials resilient to hazards and based on the building code, including the use of the principle of universal design and the standardisation of building materials														Infrastructure, Rural, Local, i-Taukei, Health	Infrastructure Local-Housing Health

50	Storage Construction Programme Develop a storage construction programme to accumulate emergency ration and materials and a mechanism to identify priority areas that need rations urgently		AGO, Economy, Infrastructure, Local, Agriculture, Defense	NDMO Agriculture RFMF
51	Public Institutions Strengthen the public institutions that will fulfil special roles in case of disasters, such as the RFMF, the FPF, the NFA, the EFL, the FRA, the WAF, the FCS, the TFL, the AFL, the LTA, the FPCL, the MSAF, etc., together with establishing financial support mechanism to them		Economy, Foreign, Water, Rural, Local, Defense, Women, Infrastructure, Industry	NDMO
	Policy Strategy-7.4: Preparedness			
52	Buildings of NDMO/NEOC Construct a new building of NDMO/NEOC, where the integrated disaster risk information system (DRIS) is connected to the public service telecommunication network (PSTN) and the database system integrated with relevant agencies' databases on DRR (see #88 below), establishing the DRR awareness activity centre		Economy, Foreign, Infrastructure, Communication	NDMO
53	Buildings of NFA-Headquarters Construct a new NFA-headquarters, where the emergency operation is conducted effectively and efficiently, together with firefighting operation		Economy, Foreign, Defense, Communication	NFA
54	Flood Control Embankments and Structural Measures and Planting Trees Construct flood control embankments and structural measures, and plant trees for the purpose of large river flood control, such as Nadi River, Ba River, Sigatoka River, Rewa River, Labasa River, et al.		Waterways, Disaster, Local, Forests, Lands, Water	Waterways Forests
55	Drainage Networks in Cities and Towns Improve and maintain drainage networks in cities and towns as measures to protect against inland floods, cleaning up drainage defects and waste		Rural, Local, Lands, Infrastructure, Waterways, Water	Waterways TCP

56	Planting Mangroves and Constructing Sea Walls Plant mangroves in swamps and construct sea walls as CCA/DRR measures against coastal erosion caused by storm surges and/or see level rises															Rural, Local, Lands, Infrastructure, Waterways, Forests	NDMO Forests
57	Landslides Countermeasure Works Construct landslides countermeasure works in landslide-prone areas, researching the cause of landslides															Rural, Local, Lands, Infrastructure, Forests	MRD FRA
58	Storage Reservoirs and/or Underground Dams Construct storage reservoirs-cum-parks and/or underground dams (refer to "Annex-11: Glossary") as drought disaster measures															Rural, Local, Lands, Infrastructure, Forests, Agriculture, Waterways	NDMO Waterways Local
59	Safer Schools Promote the construction of safer schools resilient to hazards and the awareness on the safer schools' framework and policy															Local, Education, Women	Education
60	Safer Hospitals Promote the construction of safer hospitals resilient to hazards															Economy, Foreign, Local, Health, Women	Health
61	Model Houses with Disaster-Resistant Structures Develop model houses enhancing disaster-resistant structures with the aim of making them more applicable in communities															Infrastructure, Local, Forests, i-Taukei, Rural	Housing
62	Model Evacuation Centre Construct model evacuation centres with pleasing functions and consideration of women, persons with disabilities, diagnosed mental patients, etc.															Economy, Rural, Local, Health, Women, Infrastructure	Health Women NDMO
63	Construction and Retrofitting of Evacuation Centres Promote the construction and retrofitting of evacuation centres in disaster-prone areas considering site selection															Economy, Rural, Local, Women, Health, Lands, i-Taukei, Infrastructure	NDMO Rural
64	Multi-Purpose Community Centres Establish multi-purpose community centres in the urban areas for promotion of public awareness, including housing settlement and the stockpiling of necessary materials to implement rescue and relief activities															Economy, Rural, Local, Health, Women, Lands, i-Taukei	CTC TCP

65	Multi-Hazards Early Warning System Develop multi-hazards early warning systems to be installed in the FMS and the MRD, which cover information on floods, cyclones, landslides, tsunamis, storm surges, coastal inundations, etc.	Infrastructure, Lands, Industry, Communication	FMS MRD
66	Standardisation of Telecommunication Services Promote the standardisation of telecommunication services to strengthen the utilisation of mobile phone networks to support disaster risk governance including disaster risk communication	Communication	TAF
67	Emergency Communication Network Develop an Emergency Communication Network using short message system (SMS), high frequency (HF) communication system, satellite communication system and digital radio communication system, with which the both way communications are to be achieved between the emergency operation centres and communities	Infrastructure, Local, Communication	NDMO TAF
68	Information Collection and Dissemination System Upgrade and expand the information collection and dissemination system in the emergency operation centres at the national and local levels and the disaster reporting system from residents to the emergency operation centres via SMS and/or the public emergency broadcasting system, and vice versa	Infrastructure, Communication	NDMO TAF
69	Tsunami Siren Networks and Evacuation Trainings and Drills Strengthen the tsunami siren networks and execute the tsunami evacuation trainings and drills	Lands, Infrastructure	NDMO MRD
70	GIS and ICT networks Improve the geographic information system (GIS) and the information and communications technology (ICT) networks which are used for emergency response system in the NEOC	Infrastructure, Communication, Lands, Local, FLIS	NDMO
71	Standby Generators Promote standby generators to supply electricity with key facilities, such as hospitals, transportation facilities, water facilities, government buildings and useful buildings during large-scale disasters	Infrastructure	Energy

72	Report on Progress of National and Local DRR Plans Develop and strengthen mechanisms to follow up on, periodically assess and publicly report on progress of national and local DRR plans														Economy, Infrastructure, Local	NDMO
73	Streaming Social Fundamentals Streamline the social fundamentals (improvement of the agrarian system, maintenance of the land registration system and the census registration system, etc.) and strengthen the databases on them														Economy, Lands, Rural, Local, i-Taukei, Agriculture	Lands TLTB
74	Timeline DRR System Construct timeline DRR systems in the national government and the local governments to smoothly execute disaster risk governance. Their actions cover three key elements—*when*, *what* and *who*—under which both the detailed role and the responsibility are stipulated for each organisation on DRR														Infrastructure, Local, Defense, Water	NDMO
75	Warning Criteria on Disaster Risks Establish and improve warning criteria on disaster risks, such as floods, storm surges, landslides, earthquakes, tsunamis and droughts, according to the disaster risk category and local circumstances														Infrastructure, Lands	FMS MRD
76	Criteria for Power Transmission/Distribution Line Routes Develop planning criteria for power transmission/distribution line routes to avoid landslide-prone areas														Infrastructure	Energy
77	Storm Surge and Coastal Inundation Prediction System Install a storm surge prediction system and a coastal inundation prediction system using GPS wave gauges and/or tide gauges installed in offshore areas														Infrastructure, Lands	FMS MRD
78	Catchment Monitoring/Management and Flood Prediction Systems Upgrade catchment monitoring/management and construct flood prediction systems on large rivers														Infrastructure, Waterways	Waterways NDMO FMS

79	Meteorological Drought Prediction System and Forest Fire Watch System Establish a meteorological drought prediction system and a forest fire watch system	Infrastructure, Agriculture, Forest, Defense, Water		NDMO FMS NFA Agriculture
80	Survey, Observation and Gauging of Hazards Establish an institution to conduct survey, observation and gauging of hazards in case of extreme weather events, especially in high-flow stages	Infrastructure, Waterways		FMS
81	Consignment Observation System for Hydro-Meteorological Observation Establish a consignment observation system for hydro-meteorological observation on rain amounts and water levels, giving a contract to the private sector or individuals to continue the observation	Infrastructure, Waterways		FMS
82	Colour Cording System Improve a colour cording system as a method of notation for disaster risk levels according to the warning criteria on disaster risks in #75 above.	Infrastructure, Lands, Communication		NDMO FMS MRD
83	Disaster Loss and Damage Assessment Set up a mechanism to implement the disaster loss and damage assessment (DLDA) that is to be conducted by the national government in case of a national disaster	Economy, Infrastructure, Local		SPD NDMO
84	Implementing Agencies for Restoring Environment Situations Strengthen the functions of the implementing agencies for restoring environment situations in rivers, sea coasts and mountains damaged by hazards	Infrastructure, Environment, Rural, Industry		Environment
85	Multi-Hazard Risk Mapping Identify sectoral and multi-sectoral disaster risks, proceed multi-hazard risk mapping using GIS technology and establish a disaster risk inspection method aimed at preventing the creation of risks, reducing of existing risks and strengthening economic, social, health and environmental resilience	Infrastructure, Local and **all key Line Ministries**		NDMO **all key Line Ministries**

86	Inspection on Infrastructure and DRR Facilities Strengthen liaison with the department in charge of inspection on infrastructure and DRR facilities which are deeply involved in the O and M, together with training systems for inspectors on them		Rural, Local, Infrastructure, Waterways	FRA Local Waterways
87	Hazardous Facilities Inspection System Establish a hazardous facilities inspection system for monitoring storage conditions in oil tanks and hazardous storage installations in urban areas and an administrative direction system for safety measures of them		Economy, Industry, Rural, Local, Environment	CTC Environment
88	Consolidation of DRR Database Systems Consolidate DRR database systems managed by DRR-related agencies and become activated the sharing and usage of data and information, creating an integrated database on disaster victims, damage, lessons learnt, DRR measures and facilities, the design data of infrastructure, the operation and maintenance (O and M) data, meteor-hydrological and earthquake data, etc.		Communication, Rural, Local, Lands, Economy, Infrastructure, Environment, Education, Lands, Defense, Health, Water, i-Taukei	NDMO TAF
89	Sharing System for Emergency Supply Set up a sharing system for emergency supplies of equipment, staff, vehicles, etc., putting relevant SOPs in place		Infrastructure, Defense	RFMF FPF NFA
90	Regular Disaster Response Exercises Promote regular disaster response exercises conducted by communities and residents, including the disaster preparedness week activities, evacuation drills, trainings and the establishment of area-based support systems		Infrastructure, Local, Women, Education	NDMO
	Policy Strategy-7.5: Emergency Response			
91	Operation of DRR Timeline System Operate the DRR timeline system (planned in #74 above) at the national and local levels to smoothly execute disaster risk governance and an activity schedule in case of disasters		Infrastructure, Local, Defense, Water	NDMO

92	Emergency Medical Team and so forth Cooperatively operate the emergency medical team (EMT), the police medical support cell, the emergency ambulance service, the mobile hospital team and the combat life savers and construct a management system on them in case of disasters	Foreign, Rural, Local, Health, Defense	Health NFA FPF
93	Relief and Rescue Works, Evacuation Guidance and Traffic Operation Promote relief and rescue works, evacuation guidance and traffic operation in cooperation with the FPF, the RFMF, the NFA, the Fiji Cluster System, the PIEMA, the Fiji Maritime Surveillance Rescue Coordination Centre, Life-Line Fiji and the EOCs in case of disasters	Economy, Health, Infrastructure, Rural, Local, Defense, Foreign and **all public service officers**	NDMO RFMF FPF NFA
94	Cooperation with International Rescue Organisations Promote rescue works in cooperation with the Fiji Cluster System, the international rescue organisations, emergency aid, the EOCs and volunteers during a national disaster	Economy, Defense, Local, Rural, Foreign	Foreign RFMF NFA
95	Rescue and Relief Operations for Displaced People Conduct rescue and relief operations for displaced people and take them to evacuation centres by use of vehicles, helicopters and/or boats	Rural, Local, Defense, Health, Women	RFMF FPF NFA
	Policy Strategy-7.6: Recovery and Reconstruction		
96	Recovery Activities for Infrastructures and Lifelines Set up mechanisms to conduct recovery activities for infrastructures (schools, hospitals, roads) and lifelines (electricity, water)	Infrastructure, Industry, Defense, Local, Water	WAF FRA Energy RFMF
97	Conservation Works for Environment Set up mechanisms to conduct conservation works for environment, ocean to reefs to ridges approach	Environment, Fisheries, Forests, i-Taukei, Water, Agriculture, Women	Environment Fisheries Forests Agriculture
98	Removal Works Set up a mechanism to conduct removal works of rubbish, rubble and debris	Infrastructure, Defense, Local	RFMF FPF NFA FCS CTC

99	DRR Mechanism against Secondary Disasters Set up DRR mechanisms including early humanitarian operation against secondary disasters, such as chemical fire, oil spills, multi-story building fires, etc., and improve technical equipment and skills to tackle them	Economy, Infrastructure, Rural, Local, Defense		RFMF FPF NFA
100	Post Disaster Needs Assessment Set up a mechanism to conduct the post disaster need assessment (PDNA) by the national government in case of a national disaster to evaluate, record, share and publicly account for disaster losses and understand the economic, social, health, education, environment, cultural and heritage's impacts	Economy, Local, Infrastructure and **all Social Sectors**		SPD NDMO **All Social Sectors**
101	Psychosocial Support, Mental Health Service and Counselling Service Enhance recovery schemes to provide a psychosocial support, a mental health service and a counselling service for all people suffered from disasters, especially from post-traumatic stress disorder (PTSD)	Health, Women		Health Women
102	National Reconstruction Plan Develop and implement a national reconstruction plan, based on BBB principle, formulated by the national government after a national disaster in cooperation with the Pacific Region Infrastructure Facility (PRIF) and international collaboration mechanisms	Economy, Rural, Local, Infrastructure		SPD NDMO Infrastructure
103	Technical and Financial Assistance Promote a mechanism for technical and financial assistance on the basis of BBB-principle to reconstruct infrastructure and public facilities destroyed by hazards	Economy, Rural, Infrastructure, Forests, Local		Economy NDMO
104	Biodiversity Eco-System Set up a mechanism to fully restore biodiversity eco-system damaged by hazards	Infrastructure, Rural, Local, Environment, Fisheries, Forests		Environment Fisheries Forests
105	Progressive Relocation Schemes Promote a progressive relocation schemes for residents living in disaster-prone areas such as hazardous zones of coastal erosion and slides	Economy, Employment, Local, i-Taukei, Lands, Women, Infrastructure		NDMO Lands TLTB Women

	Policy Strategy-7.7: Knowledge and Information		
106	Historical, Traditional, Cultural and Heritage's Buildings Strengthen historical, traditional, cultural and heritage's buildings to make them resilient against earthquakes, cyclones, floods and landslides	Local, Industry, Education, Forests	Education
107	Value of Traditional Housings Reconsider and enlighten the value of traditional housings and raise awareness about how to construct it	Local, Industry, Education, Forests	Education
108	Disaster-Ready Culture Re-evaluate disaster experiences and use the lessons learnt and good practices to promote a disaster-ready culture recognising low cost and effective CCA	Education, Rural, Local, Infrastructure	Education NDMO
109	DRR White Paper for Fiji Develop a "DRR White Paper for Fiji", which covers the policy, strategies, plans, disaster reports, statistical data on damage and loss, information on hydro-meteorological and geological-geophysical phenomena, information on DRR programmes and projects, information of science and technology, etc.	PMO, Economy, Infrastructure, Local, Communication	SPD NDMO
110	Community-Based Organisation for DRR Set up and drive on a community-based organisation (CBO) for DRR supported by the NDMO, local governments and the Fiji Cluster System to enhance collaboration among people at the local level and disseminate disaster risk information to communities	Infrastructure, Local	NDMO
111	Tree-Planting Campaign Expand 'Tree-Planting Campaign' to encourage voluntary tree and/or mangrove planting activities which are to be conducted as a part of the school curriculums and the corporate social responsibility (CSR).	PMO, Economy, Forests, Agriculture, Local, Water, Education, Women, Environment, Industry, Rural, I-Taukei, Lands	Education Forests Industry

112	ABOUR Week Re-introduce 'ABOUR week in schools' and 'Climate Change Adaptation Week'																Economy, Education, Environment	Education CCU
113	Paid Service of Meteorological, Hydrological and Earthquake Data Establish an institution for providing a paid service of meteorological, hydrological and earthquake data which are to be used by researchers, businessmen and development planners																Infrastructure, Economy, Lands	FMS MRD
114	Hazard Risk Map Exercise Promote hazard risk map exercise in schools																Education, Rural	Education
115	Advanced Technical Textbooks and Manuals Develop advanced technical textbooks to support disaster risk governance and DRR measures, standardized manuals on disaster risk evaluation and assessment, a manual on disaster responses for farmers and fisheries, an evacuation instruction manual which is managed by emergency operation centres and a manual for managing evacuation centre																Economy, Lands, Rural, i-Taukei, Local, Lands, Education, Agriculture, Fisheries, Defense, Women, Infrastructure	NDMO Agriculture Fisheries Education
116	School Textbooks on Science and Technology Develop school textbooks on science and technology including information on disaster preparedness, response, recovery and reconstruction as educational materials																Infrastructure, Education	Education NDMO
117	Public Education Programmes and Qualification System Implement Public Education Programmes for CCA/DRR literacy and promote the Qualification System issued by the High Education Commission																PMO, Education, Rural, Local, Women, i-Taukei, Communication	Education
118	Community-Based Disaster Risk Management Training Tools Develop DRR tools like community-based disaster risk management (CBDRM) training tools which are used for day-to-day operations including community-based DRR assessment by DRR and conservation officers																Infrastructure, i-Taukei, Local, Défense	NDMO

119	National Health System Strengthen the national health system for developing the capacity of health workers in understanding disaster risks, promoting and enhancing the training capacities in the field of disaster medical care	Health	Health
120	Regular Round-Table Meetings on CCA/DRR Convene regular round-table meetings on CCA/DRR among relevant agencies, UN organisations, donors, CROPs, NGOs, universities, churches and the mass media such as newspapers, TVs and radios including the community radio	Communication, Economy, Rural, Lands, Health, Defense, Water, Women, i-Taukei, Education, Infrastructure	NDMO Communication
121	CCA/DRR Broadcast Programmes Improve CCA/DRR broadcast programmes with cooperation of relevant agencies, which contribute to raising of public awareness, understanding and disseminating hazards, disaster risks and disasters, stimulating a culture of prevention and strong community involvement in DRR activities and public consultations at all levels of society.	Communication, Economy, Rural, Lands, i-Taukei, Women, Education, Water, Infrastructure	Communication NDMO
122	Public Emergency Broadcasting System Strengthen the Public Emergency Broadcasting System consisting of the public radio and the community radio to support early warning systems and life-saving protective measures	Rural, i-Taukei, Communication, Women, Education	Communication Women

(random order)

Table-12 Abbreviations for Supporting and Implementing Agencies

Ministry	Department and Agency
Agriculture: Ministry of Agriculture **Civil**: Ministry of Civil Service and Communications **Communication**: Ministry of Civil Service and Communications **Defence**: Ministry of Defence and National Security **Disaster**: Ministry of Disaster Management and Meteorological Services (MODM) **Economy**: Ministry of Economy **Education**: Ministry of Education, Heritage and Arts **Employment**: Ministry of Employment, Productivity and Industrial Relations **Energy**: Ministry of Infrastructure and Transport **Environment**: Ministry of Waterways and Environment **Fisheries**: Ministry of Fisheries **Foreign**: Ministry of Foreign Affairs **Forests**: Ministry of Forests **Health**: Ministry of Health and Medical Services (MOHM) **Housing**: Ministry of Local Government, Housing and Community Development (MOLG) **Industry**: Ministry of Industry, Trade and Tourism **Infrastructure**: Ministry of Infrastructure and Transport (MOIT) **iTaukei**: Ministry of iTaukei Affairs **Justice**: Ministry of Civil Service and Communications **Lands**: Ministry of Lands and Mineral Resources **Local**: Ministry of Local Government, Housing and Community Development (MOLG) **Rural**: Ministry of Rural and Maritime Development (MORM) **Sugar**: Ministry of Sugar Industry **Youth**: Ministry of Youth and Sports **Water**: Ministry of Infrastructure and Transport (MOIT) **Waterways**: Ministry of Waterways and Environment **Women**: Ministry of Women, Children and Poverty Alleviation	**AFL**: Airports Fiji Limited **AGO**: Office of the Attorney-General **CCU**: Climate Change Unit **CTC**: City and Town Council **EFL**: Energy Fiji Limited **FCS**: Fiji Correction Service **FIE**: Fiji Institute of Engineers **FLIS**: Fiji Lands Information System **FMS**: Fiji Meteorological Services **FPCL**: Fiji Ports Cooperation Limited **FPF**: Fiji Police Force **FRA**: Fiji Roads Authority **LTA**: Land Transport Authority **MRD**: Mineral Resources Department **MSAF**: Marine Safety Authority of Fiji **NDMO**: National Disaster Management Office **NFA**: National Fire Authority **PMO**: Office of the Prime Minister **RFMF**: Republic of Fiji Military Forces **SPD**: Strategic Planning Division **TAF**: Telecommunications Authority of Fiji **TCP**: Department of Town and Country Planning **TFL**: Telecom Fiji Limited **TLTB**: iTaukei Land Trust Board **WAF**: Water Authority of Fiji

【Setting Status】The policy (NDRRP) is formulated on the basis of the disaster risk governance scheme for Fiji on 1st August 2018.

Part-2 Annex

Flood in Nadi Town, March 2012

Annex-1: Coping Capacity and Disaster Risk

1.1 Coping Capacity

Fijian society is burdened with low resistance to hazards, which is why any natural disaster can be catastrophic. As a clue to overcome this vulnerability, let us introduce the notion of coping capacity, or resilience, as an attribute of the social system. (See Fig.14A)

Social system comprises all the factors that constitute the society, such as human members and their livelihood, human health, legal institutions, communities, social and economic resources, cultural heritage, ecosystems, etc. Each society has a coping capacity that must be fully engaged in order to protect this social system effectively against exposure to hazards.

In enhancing coping capacity and making it sustainable, it is necessary to eradicate the primordial causes of vulnerability to disasters in Fijian social system. It is an undeniable fact that wealthy nations enjoy greater coping capacity than poorer nations. Thus, countries like Fijimust implement and integrate a variety of development projects that meet specific conditions and fulfil many different needs inorder to improve their coping capacity. It is important thatr these projects start small, grow larger over time, and spread widely.

Since natural hazards attack the vulnerable social system and cause disaster, the national government and local governments and communities must control this mechanism. Thus, it is necessary to defuse the primordial causes of the vulnerability by capturing the pre- and post-disaster changes in natural and social conditions. In this task, security countermeasures must be implemented at the livelihood level to halt the vicious cycle of a deteriorated environment worsening socio- economic conditions.

Fig.14A illustrates the relationship between hazards, coping capacity of a social system and disaster risk reduction (DRR).

Every social system contains more or less vulnerability in its coping capacity; however, the society with very low ability to resist hazards is frequently harmed by disasters, whereas the society with very high coping capacity can endure the impacts of the hazard and thereby maintain itself. Thus, in order to control damage from disasters, the society ought to enhance its coping capacity and transform itself into a resilient society.

This situation could be compared to the relationship between bioagents, the human immune system and treatment (Fig.14B). The immune system in a human body would protect the body. But the body with very low immunity against bioagents would frequently be attacked by diseases, whereas the body with very high immunity can endure the impacts of the diseases and thereby maintain itself. Thus, if a person who has often been attacked by diseases desires to be resistant against diseases, he or she ought to improve his or her immune system to resist the impact of the bioagents.

In short, it is imperative to enhance the coping capacity of the social system using DRR—disaster risk governance and DRR measures—to make the society resilient enough to resist hazards.

There are many hydro-meteorological and geophysical phenomena that create disaster-causing hazards. Likewise, coping capacities are not merely physical; they also include social, economic, historical and cultural factors that are interrelated at multiple levels. Thus, the types, range and magnitude of such factors are quite different from area to area. Fig.15 illustrates the social factors that should be taken into consideration in terms of climate change and disaster in enhancing resilience against disasters (disaster coping capacity).

One characteristic of a disaster is that it links different kinds of. For instance, at the time of a disaster, factors such as poverty and economic gaps, population increases and urbanisation and deterioration of the environment and socio-economic situation are linked. Moreover, this link is reinforced and expanded, and thereby the social change caused by this linkage is accelerated.

The magnitude of the disaster damage depends on the difference between the magnitude of the impact of the natural hazard and the degree of coping capacity of the society, which can be conceptually shown as below.

(Impact of Hazards) − (Coping Capacity) = (Disaster: Loss and Damage)

Once a disaster strikes, year of previous efforts at development and economic growth can be obliterated in a moment, and the distribution of limited resources (human resources, material resources, information resources, human connection resources) can be skewed. In fact, the disaster can constitute an assault on human security, threatening the dignity of individuals and the society.

A disaster is a complex event, but from the comprehensive viewpoint, what matters is the coping capacity of the social system and the way it responds to the disaster. Much of the impact of a disaster is the result of the dysfunction of individuals, organisations and society against the environmental changes caused by hazards in which human life is lost and assets and social order are deteriorated or destroyed.

Consequently, unless the lack of coping capacity, the primordial cause of disaster, is resolved, the vulnerability to hazards cannot be overcome. In order to eliminate the causes of disasters and to enhance coping capacity, it is necessary to let the residents freely access the resources that are indispensable for sustainable economic growth by way of social and economic development.

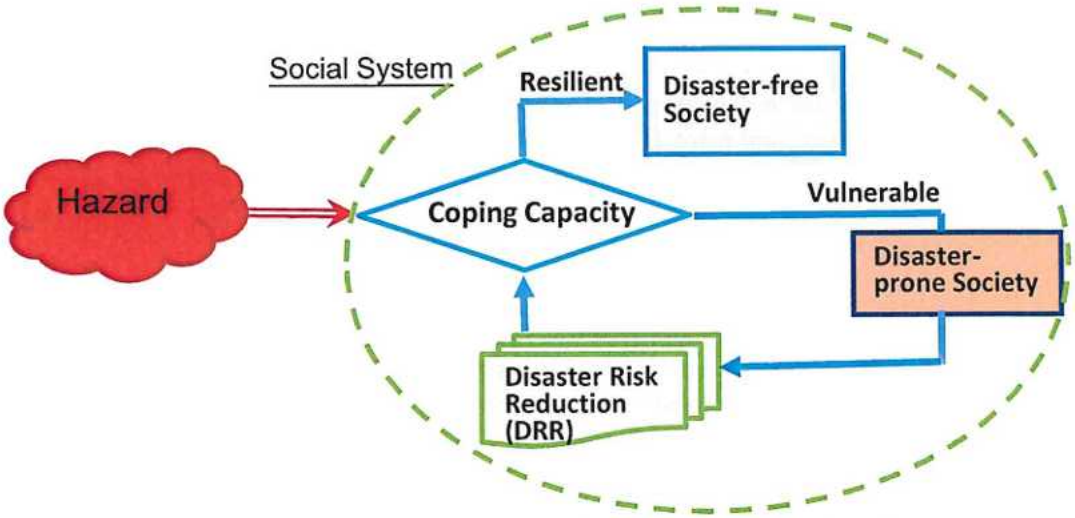


Fig.14A Relationship among Hazards, DRR and Coping Capacity

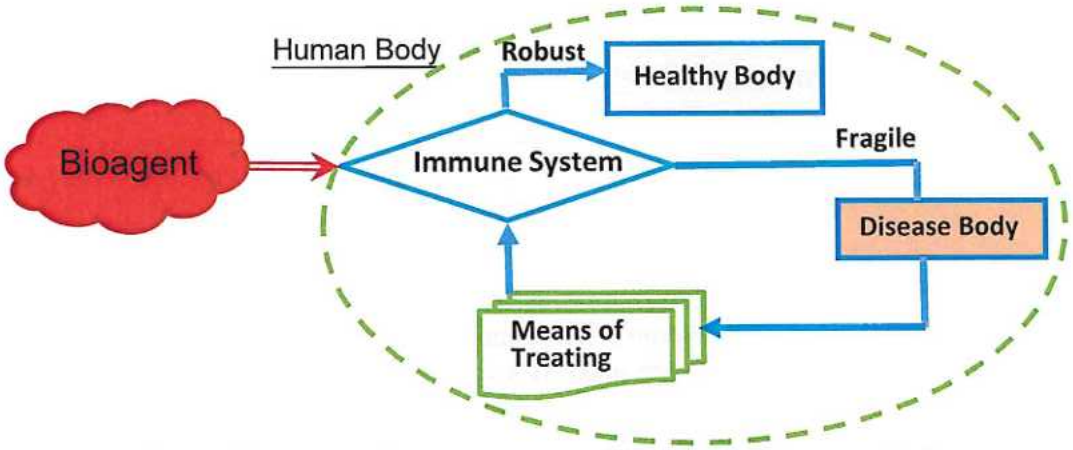


Fig.14B Relationship among Bioagents, Means of Treating and Immune System

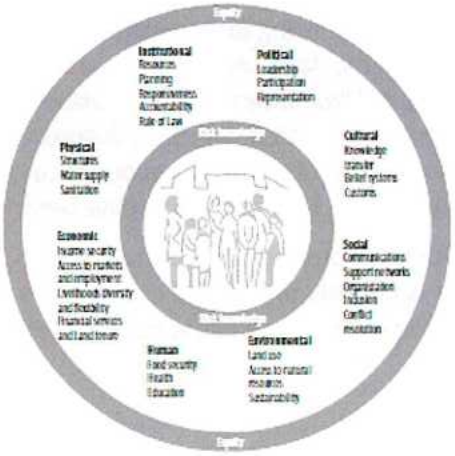


Fig.15 Factors Influencing Resilience[47]

[47] Turnbull M. Et al. "Toward resilience, 2013", Publishing Ltd.

1.2 Disaster Risk

Artificial external force can be precisely controlled by merely prescribing the conditions, whereas natural external force (hazard) cannot be controlled. Nor is it possible to predict correctly when, where and to what extent the exposure will occur. Therefore, it is descriptively assumed that the hazard is a probabilistic event that occurs in a specific place within the predefined time (return period) with predefined magnitude.

Thus, the hazard can be regarded as an uncertain event that exerts impact on a certain area within the predefined time with predefined magnitude. However, even when the exposure has occurred, the scale of the disaster it causes greatly differs from place to place depending on the coping capacity, or the resilience, of each area; in the area where coping capacity is high, the disaster risk is low, while in the area with high vulnerability to hazards, the disaster risk is higher to the exposure with the same magnitude. Therefore, it can be assumed that disaster risk is determined by the balance probabilistic hazard with coping capacity.

According to the UNISDR's definition, disaster risk[48] can be conceptually presented as below:

$$(\text{Disaster Risk}) = \frac{\text{Hazard} \times \text{Exposure} \times \text{Vulnerability}}{\text{Coping Capacity}}$$

Disaster risk is not the event with specific figuration but the composite notion presented by the equation above, from which no definitive image emerges. Thus, in order to capture the real substance of disaster risk, let us examine the contents of probabilistic hazard and coping capacity.

Probabilistic hazard contains the information of the types of hazard such as heavy rain, storm wind, tidal wave and earthquake/tsunami, the information of the return period (e.g., It occurs once per a decade.) and the information of the scale of the hazard (e.g., The amount of rainfall is 100mm.) and so forth.

Coping capacity is related not only to the economic, physical, social, cultural and environmental resources of the nation (the social system that is afflicted by the hazard) but also to all the factors necessary for the living in the society such as human life, livelihood, health, business activity, community, food production, warning and alarming system, transportation system, etc. Especially, scarce wealth, skewed distribution of wealth (hierarchical disparity and regional disparity), poverty, inequality, climate change, rapid urbanisation and insufficient land control are the primordial cause of the vulnerability of the social system, which can undermine the society's coping capacity to a great extent.

By incorporating this disaster risk concept into the DRR measures, it is possible to capture the disaster as a vivid image. It is the role of the DRR measures to enhance coping capacity so that the social system including human resource is not afflicted with disaster risks.

---

[48] The loss of life, injury, destroyed or damaged assets which could occur to a system, society or community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.

Disaster risk is always associated with opacity and uncertainty. Thus, instead of coping with each risk individually, it is necessary to construct a social system that has sufficient coping capacity against big-scale disasters by establishing integrated strategies beforehand, by setting priority orders of disaster risks, by systematising the experience, information and knowledge of the disaster and by cooperation among the government, businesses and local community residents.

The construction of a big city with enough safety requires a huge amount of construction cost; therefore, let us introduce the notion of acceptable risk into disaster risk to halt the soaring cost. This notion is indispensable to the planning and designing of infrastructure.

Most hazards cannot be correctly predicted by science. Nor are there any theoretically right answers for how to cope with the exposure of the hazard. Therefore, our challenge is to determine how to plan disaster risk whose intensity is unknown. In addition, should it be impossible to build greater under coping capacity immediately, stakeholders for DRR must determine the best policy for the time being, to construct necessary countermeasures and to implement them.

Finally, it is critical to use cross-cutting DRR—disaster risk governance and DRR measures—that the advantage not only of science and technology but also of knowledge of the society, economy and politics (Fig.16).

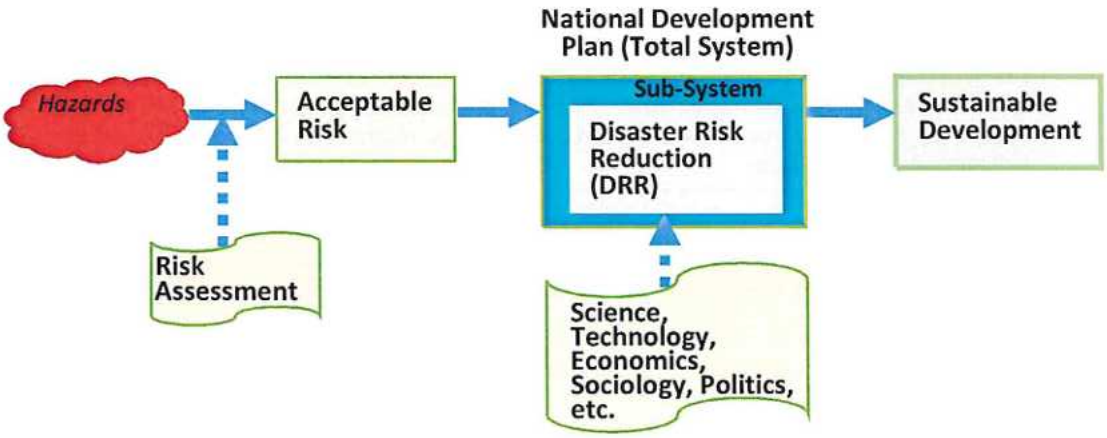


Fig.16 Measures for Disaster Risk Reduction as a Sub-System of Development Plan

Annex-2: Global Targets of the Sendai Framework

The 38 Global Indicators in Table-13 have been agreed as the guides to achieve the seven Global Targets of the Sendai Framework, the global framework for DRR concluded in 2015. Fiji is required to fulfil these Indicators by 2030[49], and the NDRRP would contribute to this endeavour.

The Sendai Framework also recommends four Priorities for Action to achieve the seven Global Targets. These priorities are related to the priorities in "Chap.8. Policy Strategies" of the policy. Thus, it is expected to fulfil the Global Targets by implementing the four actions based on the policy.

Table-13 Global Indicators for the Global Targets of the Sendai Framework

Global Target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015.	
A-1 (compound)	Number of deaths and missing persons attributed to disasters, per 100,000 population.
A-2	Number of deaths attributed to disasters, per 100,000 population.
A-3	Number of missing persons attributed to disasters, per 100,000 population.
The scope of disaster in this and subsequent targets is defined in paragraph 15 of the SFDRR and applies to small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risk.	

Global Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015.	
B-1 (compound)	Number of directly affected people attributed to disasters, per 100,000 population.
B-2	Number of injured or ill people attributed to disasters, per 100,000 population.
B-3	Number of people whose damaged dwellings were attributed to disasters.
B-4	Number of people whose destroyed dwellings were attributed to disasters.
B-5	Number of people whose livelihoods were disrupted or destroyed, attributed to disasters.

[49] Global Target-E is exceptional, which is due in 2020.

Global Target C: Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.	
C-1 (compound)	Direct economic loss attributed to disasters in relation to global gross domestic product.
C-2	Direct agricultural loss attributed to disasters. *Agriculture is understood to include the crops, livestock, fisheries, apiculture, aquaculture and forest sectors as well as associated facilities and infrastructure.*
C-3	Direct economic loss to all other damaged or destroyed productive assets attributed to disasters. Productive assets would be disaggregated by economic sector, including services, according to standard international classifications. Countries would report against those economic sectors relevant to their economies. This would be described in the associated metadata.
C-4	Direct economic loss in the housing sector attributed to disasters. Data would be disaggregated according to damaged and destroyed dwellings
C-5	Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters. Those elements of critical infrastructure to be included in the calculation will be at the decision of Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.
C-6	Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

Global Target D: Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.	
D-1 (compound)	Damage to critical infrastructure attributed to disasters.
D-2	Number of destroyed or damaged health facilities attributed to disasters.
D-3	Number of destroyed or damaged educational facilities attributed to disasters.
D-4	Number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters. *Those elements of critical infrastructure to be included in the calculation will be at the decision of Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.*
D-5 (compound)	Number of disruptions to basic services attributed to disasters.
D-6	Number of disruptions to educational services attributed to disasters.
D-7	Number of disruptions to health services attributed to disasters.
D- 8	Number of disruptions to other basic services attributed to disasters. Those elements of basic services to be included in the calculation will be at the decision of Member States and described in the accompanying metadata.

Global Target E: Substantially increase the number of countries with national and local DRR strategies by 2020.	
E-1	Number of countries that adopt and implement national DRR strategies in line with the Sendai Framework for DRR 2015-2030.
E-2	Percentage of local governments that adopt and implement local DRR strategies in line with national strategies. *Information should be provided on the appropriate levels of government below the national level with responsibility for DRR.*

Global Target F: Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.	
F-1	Total official international support, (ODA plus other official flows), for national DRR actions. *Reporting of the provision or receipt of international cooperation for DRR shall be done in accordance with the modalities applied in respective countries. Recipient countries are encouraged to provide information on the estimated amount of national DRR expenditure.*
F-2	Total official international support (ODA plus other official flows) for national DRR actions provided by multilateral agencies.
F-3	Total official international support (ODA plus other official flows) for national DRR actions provided bilaterally.
F-4	Total official international support (ODA plus other official flows) for the transfer and exchange of DRR related technology.
F-5	Number of international, regional and bilateral programmes and initiatives for the transfer and exchange of science, technology and innovation in DRR for developing countries.
F-6	Total official international support (ODA plus other official flows) for DRR capacity building.
F-7	Number of international, regional and bilateral programmes and initiatives for DRR related capacity building in developing countries.
F-8	Number of developing countries supported by international, regional, bilateral initiatives to strengthen their DRR related statistical capacity.

Global Target G: Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.	
G-1 (compound G2- G5)	Number of countries that have multi-hazard early warning systems.
G-2	Number of countries that have multi-hazard monitoring and forecasting systems.
G-3	Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms.
G-4	Percentage of local governments having a plan to act on early warnings.
G-5	Number of countries that have accessible, understandable, usable and relevant disaster risk information and assessment available to the people at the national and local level.
G-6	Percentage of population exposed or at risk from disasters protected through pre-emptive evacuation following early warning.

Annex-3: Partnerships in Fiji and the Pacific

3.1 Pacific Platform for Disaster Risk Management Partnership

Co-hosted by UNISDR and SPC, the Pacific Platform for Disaster Risk Management (PPDRM) was established in 2008 as the Pacific's response/implementation of the global strategy on DRR and is aligned to the Global Platform for DRR managed by UNISDR.

The PPDRM is guided by the following principles:

- To build on existing regional mechanisms and structures;
- To foster multi-stakeholder participation and inclusiveness;
- To avoid duplication; and
- To ensure transparency and accountability.

The PPDRM is a forum that brings together the stakeholders and practitioners responsible to DRM. The functions of the PPDRM are to:

- Strengthen coherence and coordination of regional DRM support through joint initiatives and joint work programming, especially in relation to National Action Plans;
- Exchange information and lessons learnt in key thematic and technical areas that have formed for DRM such as CCA, education, safer hospitals and early warning;
- Influence and establish policy through advocacy and informed dialogue by recognizing and realizing the essential links between science and technical levels to the political and policy level; and
- Improve reporting and monitoring and evaluation of progress in DRM at regional and national levels.

With SPC and UNISDR as secretariat, the PPDRM currently has the following membership:

- CEOs responsible for DRM and for mainstreaming DRR from Pacific countries;
- Heads of the NDMO;
- National Focal Points for the Sendai Framework;
- Inter-governmental organisations working in the Pacific; and
- National, regional and international organisations listed as members of the Pacific disaster risk management partnership.

3.2 Pacific Resilience Partnership

The Framework for Resilient Development in the Pacific (FRDP) provides the following guidance or strategic intent in relation to the establishment of the Pacific Resilience Partnership (PRP).

The PRP will bring together the central agencies concerned with climate change and the DRM community of practice, such as Ministries of Economy, relevant sectors (education, health, tourism, energy, etc.), the private sector, civil society stakeholders and donors.

The PRP will bring together and strengthen the linkages among climate change and disaster-resilient mechanisms such as:

- The Pacific Climate Change Roundtable (PCCR);
- The Pacific Platform for Disaster Risk Management (PPDRM);
- The Energy Advisory Group (EAG);
- The Water Partnership (WP);
- The Pacific Meteorological Council (PMC);
- The Pacific Humanitarian Team (PHT); ad
- The Pacific Islands Emergency management Alliance (PIEMA).

The PRP will promote the exchange of experience and learning with related sectoral, scientific, technical and policy mechanisms at the national, regional and global levels, which will ensure that implementation of the FRDP is anchored within sectors and other areas of strategic importance.

Core functions of the PRP are to:

- Bring together the climate change and DRM communities of practice;
- Facilitate monitoring, evaluation and reporting;
- Communications;
- Joint regional meeting with the PCCR and the PPDRM; and
- Exchange of experience and learnings in sector-specific mechanisms.

3.3 Fiji Cluster System

The Fiji Cluster System is a national mechanism established to guarantee that external humanitarian support to disaster-affected people and communities is well coordinated and aligned with the leadership of the affected government. The Fiji Cluster System has almost the same function as the Pacific Humanitarian Team (PHT) that the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) Regional Office for the Pacific supports technically.

According to the Cabinet Memorandum[50], a humanitarian 'Cluster System' was first used in Fiji as part of the response to Tropical Cyclone Evans, which struck Fiji on 17 December 2012.

The purpose of the cluster system was to complement the Fiji national disaster risk management arrangement under the Natural Disaster Management Act 1998, by coordinating humanitarian actors in support of government-identified needs arising from disaster.

The clusters were activated in late February 2016 in response to Tropical Cyclone Winston to coordinate national and international humanitarian assistance and to align it with government responses.

The 2016 cluster activation was led by government nations under the coordination of the Disaster Controller. This system rapidly become known as the 'Fiji Cluster System'. The nine clusters were coordinated by the 'Inter-Cluster', a coordination forum led by the Disaster Controller/Permanent Secretary of the Ministry of Rural and Maritime Development and

[50] Cited from "Cabinet Memorandum: Information on Fiji Cluster System, May 2017"

Disaster Management and Meteorological Services. The Inter-Cluster members are the Cluster Lead (government) and Co-Lead (humanitarian) of each sectoral cluster (Table-14).

At the World Humanitarian Summit in May 2016, the Minister for Rural and Maritime Development and national Disaster Management, the Honourable Inia Seruiratu, announced Fiji's Post Tropical Cyclone Winston Disaster Response Agenda to transform adversity into disaster and climate resilience through firstly the development of a national Humanitarian Policy.

Tropical Cyclone Winston showed that the Fiji Cluster System is well suited to strategic planning and financing at a national level, as it is the primary level of interaction on international humanitarian organisations.

Tropical Cyclone Winston also showed that coordination at a sub-national level, where implementation is the primary focus, differs from that at national level, and will need a different coordination system. At sub-national level, actors tend to assist villagers and settlements with provide multi-sectoral assistance and have little attention and time to attend a series of sectoral cluster meetings. Closer engagement of divisional government with civil society actors already operating on the ground is preferable to encouraging international teams to assess and implement humanitarian actions during emergencies.

Table-14 Fiji Cluster System

	Coordinator: Permanent Secretary of the Ministry of Rural and Maritime Development and Disaster Management and Meteorological Services		
	Cluster	**Lead Ministry**	**Co-Lead Organisation**
Fiji Cluster System	**Education**	Education	UNICEF, Save the Children
	Food Security and Livelihood	Agriculture	FAO Food and Agriculture Organisation
	WASH[51]	Health and Medical Services	UNICEF
	Health and Nutrition	Health and Medical Services	World Health Organisation
	Shelter	Local Government and Housing	International Federation of Red Cross
	Safety and Protection	Women, Children and Poverty Alleviation	UN Women
	Logistics	Economy	World Food Programme
	Communication	Information and Communication	World Food Programme
	Infrastructure	Infrastructure and Transport	(none)

(random order)

[51] WASH: Water, Sanitation and Hygiene

Annex-4: Contents of Disaster-Related Acts and Policies for Fiji

4.1 Green Growth Framework, 2014

The Green Growth Policy is a tool that supports the incorporation of sustainable development into future development strategies for Fiji. It also accelerates integrated and inclusive sustainable development, which will inspire action at all levels to strengthen environmental resilience, improve social conditions and reduce poverty, support economic growth and strengthen Fiji's capacity to withstand and manage the adverse effects of climate change.

The impetus for green growth originates from the need to better utilise natural resources, reduce vulnerability to environmental risks and promote socially inclusive development. Population growth, increasing urbanisation, unsustainable consumption and resource use, infrastructure deficits, and the increasing frequency of disasters due to the changing climate increase the risk of food and energy insecurity while threatening economic and social progress.

This framework is intended to support and complement the People's Charter for Change, Peace and Progress and the 2010–2014 Roadmap for Democracy and Sustainable Growth Framework. Therefore, the framework shares the same vision of *'A Better Fiji for All'*.

A major outcome item from the Green Growth Framework was the need to integrate CCA and DRR through the formulation of a Joint Strategy for CCA and DRR. The plan will provide the strategic direction towards resilient development, ultimately benefiting the most vulnerable through coordination and synergised and remedy actions from all sectors and agencies to address the threads of both climate change and hazards.

The key thematic areas include the following:

- Thematic Area 1: Building Resilience to Climate Change and Disaster
- Thematic Area 2: Waste Management
- Thematic Area 3: Sustainable and Ocean Resources
- Thematic Area 4: Inclusive Social Development
- Thematic Area 5: Food Security
- Thematic Area 6: Fresh Water Resources and Sanitation Management
- Thematic Area 7: Energy Security
- Thematic Area 8: Sustainable Transportation
- Thematic Area 9: Technology and Innovation
- Thematic Area 10: Greening Tourism and Manufacturing Industries

4.2 Natural Disaster Management Act, 1998

The Natural Disaster Management Act (NDMA) requires the NDMO to regularly monitor, audit, review and report on the implementation of the agreement in collaboration with the implementing and Supporting Agencies. This helps ensure the effective implementation and use of the monitoring and review results to address underperformance and improve future

flood risk reduction/adaptation efforts. The Executives of National Disaster Risk Management provide policy oversight for national DRR and disaster management initiatives.

The NDMA is an act that puts better provisions in place so that the government and relevant agencies can perform their functions and duties in relation to DRR. Provisions related to DRR include:

- Section 39, which deals specifically with disaster mitigation and preparedness;
- Sections 5(a) and (b), which set out the functions of the National Disaster Management Council, including disaster preparedness;
- Section 7(b), which creates the Preparedness Committee;
- Sections 40(1), 41(1) and 41(3), which set out the responsibilities of the committee, including disaster preparedness activities;
- Section 7(c), which creates the Mitigation and Prevention Committee; and
- Section 8(3), which sets out the functions of the National Disaster Management Office.

4.3 Roadmap for Sustainable and Economic Development for Fiji, 2010

The objective of the Roadmap is to implement policies to achieve the Vision of *'A Better Fiji for All'* which is consistent with the People's Charter. To achieve this vision, the overarching objective is to rebuild Fiji into a non-racial, culturally vibrant and united, well-governed, truly democratic nation that seeks progress and prosperity through merit-based equality of opportunity and peace.

4.4 National Climate Change Policy, 2012

Climate change constitutes one of the greatest barriers to sustainable development. It puts Fiji's biodiversity and ecosystems—particularly in its marine and coastal areas—at risk. This has severe implications for Fiji's economic growth, as the country relies heavily on its natural resources for economic development; fisheries, forests and agriculture are its primary industries. The effects of climate change are widespread and cross-sectorial. Effective co-ordination of a multi-disciplinary approach and a well-established government position on issues and policies are required to address the impacts of climate change.

In 2007, the Cabinet endorsed Fiji's National Climate Change Policy Framework, which defined the position of the government and other stakeholders on issues of climate change, climate variability and sea level rise. It also defined the various responsibilities of each stakeholder in the short and long term. The framework underwent review in 2011 to reflect current and emerging climate change issues at the local, national and international level. The reviewing and updating of the framework led to the development of this National Climate Change Policy, in accordance with the 2011 Corporate Plan for the Department of the Environment under its Climate Change Programme.

The policy provides a platform for coordination among sectors, direction on national positions and priorities regarding climate change mitigation and adaptation.

The policy includes the eight objectives and the strategies to achieve of the objectives. The objectives cover the following areas:

- Mainstreaming;
- Data collection, storage and sharing;
- Awareness raising;
- Education and training;
- Adaptation;
- Mitigation;
- Financing; and
- International and Pacific region participation.

4.5 National Humanitarian Policy, 2017

The National Humanitarian Policy[52] governs all aspects of humanitarian response within the national DRRM cycle, which includes preparedness, disaster readiness, DRM, emergency response, recovery, rehabilitation, reconstruction, contingency planning, capacity building, education and awareness. It also creates links with Fiji development and climate change initiatives while strengthening and reinforcing national, institutional, community and individual capacity, reliance, self-reliance and inclusiveness over the long term by addressing key thematic priorities.

Fiji is therefore adopting the post–Tropical Cyclone Winston Disaster Response Agenda to transform adversity into disaster and climate resilience through:

- the National Humanitarian Policy, to institutionalise humanitarian practices;
- the National Fiji Cluster System, endorsed in a set of national guidelines and a manual; and
- the medium-term programme for strengthening humanitarian capacity.

The key thematic priorities are as follows:

- Coordination of humanitarian assistance;
- National information management and communication;
- National and local capacity building; and
- Funding and financial monitoring.

In addition to the above, the policy looks at the overall coordination of humanitarian response at all government levels through the Fiji Cluster System with clear stakeholder roles and responsibilities.

[52] "NDMO DISMAC: National Humanitarian Policy for Disaster Risk Management, 2017"

Annex-5: List of Existing Disaster Risk Reduction Related Acts and Policies for Relevant Sectors in Fiji

Table-15 Legislation, Policies and Plans for Relevant Sectors in Fiji

Sector	Legislation, Policies and Plans
Agriculture	**Agricultural Landlord and Tenant Act, 1966**
	Agricultural Marketing Authority Act, 2004
	Millennium Ecosystem Assessment, 2005
	Disaster Risk Management Strategy for the Agriculture Sector, 2010
Communication	**Posts and Telecommunication Act, 1989**
	Television Act, 1992
	National ICT Policy, 2004
	Broadcast License Policy, 2006
	Telecommunication Act, 2008
	Reform of Information Technology and Computing Services Act, 2013
	Television (Cross-Carriage of Designated Events) Act, 2014
	Telecommunications Levy (1% of voice revenue goes to rural telecommunications infrastructure development), 2015
Defence	**Republic of Fiji Military Forces Act, 1949**
	Police Act, 1965
	National Fire Service Act, 1994
Disaster Management, Including FMS	National Disaster Management Plan, 1995
	Natural Disaster Management Act, 1998
	Draft Fiji Drought Response Plan, 2015
	Draft Tsunami Response Plan, 2016
	Draft National Humanitarian Policy, 2017
Education	**Education Act, 1966**
	Education in Emergencies and School Safety Policy, 2014
Energy	**Electricity Act, 1966**
	Fiji National Energy Policy, 2006
	Sustainable Energy for All (SE4All) Rapid Assessment and Gap Analysis, 2013
	Draft National Energy Policy, 2014
Environment	National Environment Strategy, 1993
	Endangered and Protected Species Act, 2002
	Endangered and Protected Species Regulations, 2003
	Environment Management Act, 2005
	Fiji's Initial National Communication under the UNFCCC (INC), 2005
	Environmental Management (EIA Process) Regulations, 2007
	National Biodiversity Strategy and Action Plan, 2007
	Biodiversity Act, 2008
	CDM Policy Guideline, 2010
	National Biodiversity Strategy and Action Plan Implementation Framework 2010-2014
	Integrated Coastal Management Framework of Fiji, 2011
	Draft Climate Change Adaptation Strategy, 2011

Sector	Legislation, Policies and Plans
Foreign Affairs	**Fiji International Event Act, 2014**
	Diplomatic Missions and International Organisations Act, 2016
Forests	**Forest Act, 1992**
	Mangrove Management Plan for Fiji, Phase 1-1985 and Phase 2-1987
	Fiji Forest Policy Statement, 2007
	Regulation of Ownership (Fiji Forest Industries Limited) Act, 2011
	Fiji REDD-Plus Policy, 2011
	Draft Development Plan 2017-2026
Health	**Public Health Act, 1935 (Cap. 111), 2002**
	Public Hospital and Dispensaries Act, 1955
	Private Hospital Act, 1979
	Health and Safety at Work Act, 1996
	Fiji Food and Nutrition Policy, 2008
	Nursing Act, 2011
Infrastructure	**Road Act, 1914**
	Fiji water supply, 1985
	Land Transport Act, 1998
	Land Transport (Amendment) Act, 1999
	Fiji Water Authority Proclamation, 2007
	WSD Guidelines for Rural Water Supply Management Plan, 2008
	Maritime Safety Authority of Fiji Decree, 2009
	Rural Water Sanitation Policy, 2012
	Maritime Transport Act, 2013
	Fiji Roads Authority Act, 2012 (Amendment) Decree, 2014
	Staff Board Policy, 2014
	Revised MoIT HR Manual, 2015
Land Management	**iTaukei Lands Act, 1905**
	Subdivision of Lands Act, 1937
	iTaukei Land Trust Act, 1940
	iTaukei Affairs Act, 1944
	State Land Act, 1945
	Land Conservation and Improvement Act, 1953
	iTaukei Development Fund Act, 1965
	Land Transfer Act, 1971
	Land Sale Act, 1974
	National Trust for Fiji (Ed. 1978)
	Agriculture Landlord and Tenant Act, 1966
	Land Development Act, 1961 (revised edition 1985)
	Land Conservation and Improvement (revised edition 1985)
	Native Land Trust (Amendment) Decree, 1988
	Natural Areas Protection Act, 1988
	Native Land Trust (Amendment) Act, 2002
	Native Lands (Amendment) Act, 2002
	iTaukei Trust Fund Act, 2004
	Real Estate Agents Act, 2006

Sector	Legislation, Policies and Plans
	Rural Land Use Policy (2nd edition), 2006
	National Action Plan under the UNCCD (NAP), 2007
	Land Use Act, 2010
	National Integrated Coastal Management (ICM) Framework, 2011
	National Housing Policy, 2012
Marine and Fisheries	**Fisheries Act, 1941**
	Fisheries Act (Amendment) Decree, 1991
	Fisheries Act (Cap 158): National Climate Change Policy
	Sea Port Management Act, 2005
	Maritime Safety Authority of Fiji Act, 2009
	Offshore Fisheries Management Decree, 2012
	Maritime (Fiji Maritime Code) Regulation, 2014
	Maritime (Fiji Small Craft Code) Regulation, 2014
	Draft National Fisheries Policy, 2016
	Endangered and Protected Species Act, 2002
Mineral Resources	**Quarries Act, 1939**
	Explosive Act, 1937
	Mining Act, 1965
	Petroleum (Exploration and Exploitation) Act, 1978
	Fiji Minerals Policy, 1995
	Draft Earthquake Networking Policy, 2017
Tourism	**Hotels and Guest Houses Act, 1973**
	Drainage Act, 1961 (revised edition 1985)
	Tourism Fiji Act, 2004
	Fijian Tourism Plan, 2021
Urban Development	**Town Planning Act, 1946 (edition 1978)**
	Housing Act, 1955
	Local Government Act, 1972
	Urban Policy Action Plan, 2007
	National Housing Policy, 2012
Waste	National Integrated Waste Management Strategy 2016-2026
	National 3R Policy, (not get enacted)
Water Resources	**Water Authority of Fiji Act, 2007**
	Water Resources Tax Act, 2008
	Draft National Resources and Sanitation Policy, 2011
	Draft Rural Water Policy, 2011
Waterways	**Rivers and Streams Act, 1880 (revised edition 1985)**
	Drainage Act (Cap 143), 1973 (revised edition 1985)
	Irrigation Act (Cap 144), 1973(revised edition 1985)
	Denarau (Nadi River) Development Act, 2011
Women/Welfare	**Human Rights and Anti-Discrimination Commission Act, 2009**
	Child Welfare Act, 2010
	National Disability Policy 2008-2018
	National Gender Policy, 2014
	National Women's Plan of Action 2010-2019

Annex-6: Disaster Management Systems in Fiji

Fiji is split into four divisions under the jurisdiction of the Ministry of Rural and Maritime Development (MORM) and the Ministry of Disaster Management and Meteorological Services (MODM). A commissioner is appointed to take charge of each one.

- Central Division (administrative office in Nausori)
- Northern Division (administrative office in Labasa)
- Eastern Division (administrative office in Levuka)
- Western Division (administrative office in Lautoka)

Under the four divisions are Fiji's fourteen provinces, and under the provinces are districts and villages. Each of these administrative units has its own representative and assembly.

At the regional government level, there are thirteen local governments (the cities of Suva and Lautoka plus eleven towns) under the jurisdiction of the Ministry of Local Government, Housing and Community Development (MOLG), each with its own city or town council. As of June 2016, the decision had been made to elevate the town of Nadi to city status and establish the new town of Navua.

This setup means that Fiji's divisions, provinces, districts and villages are under the jurisdiction of a different agency than its cities and towns. Disaster management is primarily carried out within the division-province-district-village structure, and it is not uncommon for disaster management in cities and towns to be insufficient.

6.1 National Disaster Management Council

Each ministry has a permanent secretary that takes responsibility for disaster management as well as the implementation of disaster-related policy. The three committees listed below have been established. The chairman of the National Disaster Management Council (NDMC) serves as the MORM and the MODM.

- Emergency Committee
- Preparedness Committee
- Mitigation and Prevention Committee

The National Disaster Controller issues instructions on emergency response by the NDMO and the National Emergency Operation Centre (NEOC), recovery and reconstruction measures and so on. The permanent secretary of both the MORM and the MODM serve as National Disaster Controller.

The National Disaster Controller is the person who effectively takes command during a disaster. Should the NEOC be dissolved, the controller will inform the public of that fact.

6.2 National Disaster Management Office

The NDMO, which takes charge of disaster response, is under the jurisdiction of the MORM and the MODM.

There are three sections in the NDMO.

- Emergency planning and coordination
- Training, education and awareness
- Risk management and policy research

The NDMO is the chief implementing organisation when it comes to disaster management. It implements specific disaster- management–related activities while coordinating with related agencies, donors and other parties involved. Another key role of the NDMO is to advise the Cabinet, the MDMC, the NDC and other related government agencies on disaster management while formulating policy.

In the event of an emergency, the NDMO will obtain warning information on extreme weather, floods, earthquakes, tsunami and other threats from the FMS and MRD, and then take charge of communicating it to related agencies, the mass media and so on. The NDMO also carries the responsibility for making decisions about warning information in the event of an emergency, setting up and operating the NEOC as needed under the command of the National Disaster Controller. Finally, the NDMO oversees and supervises the operation of emergency operations centres at the provincial or district level.

In addition to responding to emergencies, the NDMO is also responsible for disaster-related preparations, post-disaster damage surveys, coordinating recover and reconstruction efforts and so on. It also conducts disaster management activities at the community level, such as drills, education and public awareness initiatives.

6.3 National Disaster Operation Centre

In the event of an emergency, the Fijian government establishes the NEOC and the Disaster Management Committee (DISMAC). The NEOC is set up when emergency response is required at the national level, with its operations primarily handled by the NDMO. During an emergency response, key personnel from relevant agencies are dispatched to the NEOC in an effort to centralise communications and the issuance of instructions.

Key personnel from the Ministry of Economy and other relevant agencies are also dispatched to the DISMAC in order to carry out its operations as well.

6.4 Fiji Meteorological Service

The Fiji Meteorological Service (FMS) operates around the clock throughout the year, monitoring the weather across the country, collecting and analysing international data, and providing forecasts and warnings for the general public through NDMO and media. It pays particular attention to the hazardous phenomena such as tropical cyclones, heavy rains and storm tides.

FMS serves as the Regional Specialised Meteorological Centre (RSMC) responsible for providing information on tropical cyclones for the South Pacific (from the equator to 25º south latitude and from 160º east to 120º west longitude) under the Tropical Cyclone Programme of the World Meteorological Organisation (WMO). It also functions as a Tropical Cyclone Advisory Centre (TCAC) for international aviation as designated by the International Civil Aviation Organisation (ICAO) and is responsible for maritime warnings for international

shipping within the framework of the International Maritime Organisation (IMO).

Tropical cyclone is one of the biggest disaster risks faced by the Oceania region. FMS addresses this risk by taking charge of RSMC and TCAC as well as maritime warning as mentioned above. All the information is disseminated to the users through both the dedicated and public lines as well as the Internet.

The FMS makes water level and rainfall observations of key rivers as well. The observations are continuously monitored when the risk of flooding increases. There are currently two river basins, the Rewa and the Navua, for which early warning systems have been established, and the FMS carries out staff training for these systems with the support of the National Institute of Water and Atmospheric Research, New Zealand (NIWA).

The FMS website[53] presents visible and infrared (VIS-IR) images from the Himawari-8, the Japanese Geostationary Meteorological Satellite (GMS), as well as the data from the JAXA Realtime Rainfall Watch which shows distribution of rainfall amount estimated from the satellites. The FMS website also provides meteorological data, forecasts and relevant information for Fiji and the neighbouring countries.

6.5 Mineral Resources Department

The Mineral Resources Department (MRD) conducts earthquake observations and stores earthquake observation data that goes as far back as the 1800s.

The NDMA stipulates that the MRD is to assess tsunami, earthquakes and landsides. The department actually does analyse and assess tsunami and earthquake data and is responsible for issuing the relevant warnings as needed.

The MRD's Earthquake Section obtains tsunami information from the Pacific Tsunami Warning Centre (PTWC) in Hawaii and conducts its own analyses of the data, issuing tsunami-related warnings when required. This information is handled by a system that rapidly communicates it for the NDMO and various major media outlets. Once it is determined that the tsunami threat has passed, the MRD immediately gives this information to the NDMO and the mass media as well.

6.6 Ministry of Waterways and Environment

The NDMA stipulates that the Department of Land and Water Resources Management (LWRM) of the Ministry of Agriculture is to work with the Department for Works and Transport (now the Ministry of Infrastructure and Transport) to evaluate flood control and river basin management programmes.

The Department of Water Resource Management (now the Ministry of Waterways and Environment) constructs facilities for irrigation, flood control and the like.

[53] "http://www.met.gov.fj/"

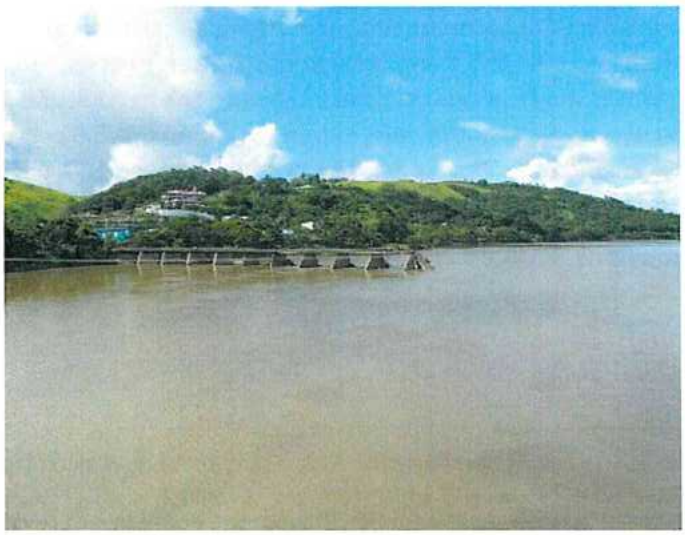
6.7 National Fire Authority

The National Fire Authority (NFA) was established under the National Fire Service Act of 1994. It has 44 branches across the country.

The NFA does work with related organisations to conduct rescue operations in the event of a disaster, although the National Disaster Management Plan does not clearly make the NFA responsible for such activities.

In the event of an emergency, the various clusters of the Fiji Cluster System, an organisation consisting of donors and other partners, works with the NDMO to deploy rescues, assistance activities and the like. For this reason, the NFA will ideally continue to actively engage in rescue operations in conjunction with the FCS.

Community disaster education activities are carried out in conjunction with fire education activities, participating in community initiatives targeted at young people.



Sigatoka Bridge, January 2009

Annex-7: Disaster Risks in Fiji

7.1 Characteristics of Disasters in Fiji

Fiji is located in a tropical climate area with significant precipitation. During the rainy season from November to April, a cyclone accompanied by rainstorm strikes Fiji twice a year on average[54], and a flood causing large-scale damage occurs once in a year on average[55].

The main disasters Fiji suffers are cyclones, river floods including inland flood, landslides, coastal erosion, storm surge, drought, earthquakes and tsunamis.

CRED-EMDAT[56] records four disasters with more than 40 deaths from 1900 to 2016 in Fiji (See Table-16). Furthermore, disasters with more than 100,000 victims occurred seven times from 1900 to 2016 in this country (Table-17). The estimated population of Fiji is 898,760 in 2016[57].

The economic damages by tropical cyclones, flood and drought are huge in Fiji. Table-18 shows the number of the victims and the amount of damage of recent large-scale disasters including tropical cyclones, floods and drought, whereas Fig.17 indicates the flooded areas in the town of Nadi by the flood in March 2012.

Coastal inundations have occurred in Fiji, which required collective relocation to some places. Moreover, droughts have frequently occurred.

In Fiji, seismicity is most vigorous in the northeast area, where Rabi and Taveuni lie. In fact, the earthquakes of 1919 (M6.9), 1932 (M6.2) and 1979 (M6.9) caused landslides and structural damage[55].

The local tsunami caused by the earthquake offshore near Suva in 1953 killed five people[55], and regional tsunamis caused by remote earthquakes have struck Fiji with low frequency.

Government line ministers make disaster assessments and report to the NDMO, which coordinates disaster response assistance. Cost estimates often reflect only damage assessment for buildings, equipment, etc., and other capital items and supplies borne by the public sector (health, infrastructure, education, power utilities, etc.). At times, the government agencies may also assess direct losses to the agricultural and fisheries sectors, often based on visual assessment and expert opinion. Where these assessments are included, they can increase the estimated cost by almost 100 per cent, as in case of Cyclone Ami (14 January 2003) and related flooding (Table-19).

Severe disaster events declared as a 'national disaster' are listed in Table-16, -11 and -12, respectively.

---

[54] "World Bank 2015: Pacific Catastrophic Risk Assessment and Financing Initiative (PCRAFI) Summary Report, 2015"

[55] "JICA 2008: Natural Disaster Risk Reduction Programme Formation Survey in the Pacific, 2008"

[56] "http://www.cred.be" CRED (Centre for the Research on the Epidemiology of Disastere) of University of Catholique de Louvain

[57] "https://data.worldbank.org/country/fiji"

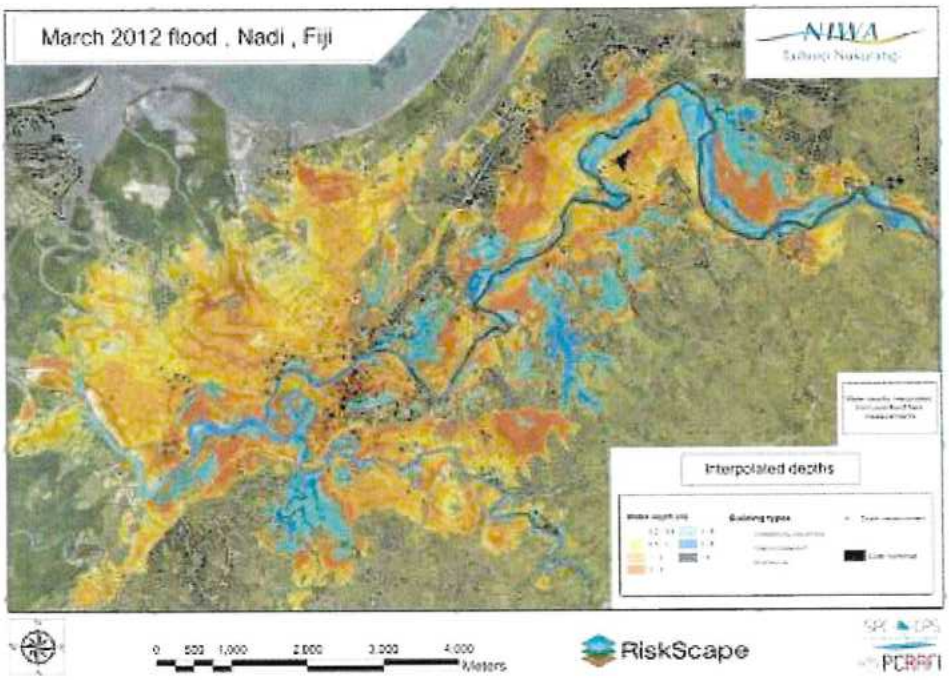


Fig.17 Interpolated Peak Water Depths during the 2012 Flood in Nadi[58]
(note: no data from coastal mangrove regions)

Table-16 Large Disaster with More Than 40 Death Tolls (1900-2016)[56]

Disaster	Date of Occurrence	Persons Killed	National Disaster
Storm (Tropical Cyclone)	16 February 1931	200	---
Storm (Tropical Cyclone Lottie)	9 December 1973	59	declared
Storm (Tropical Cyclone Meli)	27 May 1979	53	declared
Storm (Tropical Cyclone Winston)	20 February 2016	42	declared

Table-17 Large Disaster with More Than 100,000 Affected People (1900-2016)[56]

Disaster	Date of Occurrence	Affected People	National Disaster
Storm (Tropical Cyclone Winston)	20 February 2016	540,400	declared
Drought	January 1998	263,455	declared
Flood (Tropical Depression)	12 April 1986	215,000	---
Storm (Tropical Cyclone Oscar)	1 March 1983	200,014	declared
Storm (Tropical Cyclone Kina)	2 January 1993	160,003	declared
Storm (Tropical Cyclone Bebe)	24 October 1972	120,000	declared
Storm (Tropical Cyclone Eric, Nigel, Odette)	17 January 1985	100,000	declared

[58] "NIWA: Nadi river Flood Risk Assessment Report, April 2014"

Table-18 Large Disasters with Huge Economic Damages (1945-2016)[56]

Damage Ranking	Disaster	Date of Occurrence	Affected People	Economic Damages (1,000 USD)	National Disaster
I	Storm (Tropical Cyclone Winston)	20 February 2016	350,000	600,000	declared
II	Storm (Tropical Cyclone Kina)	2 January 1993	160,003	100,000	declared
III	Storm (Tropical Cyclone Eric, Nigel, Odette)	17 January 1985	100,000	73,000	declared
IV	Flood (Tropical Depression)	29 March 2012	14,984	72,000	declared
V	Storm (Tropical Cyclone Oscar)	1 March 1983	200,014	50,000	declared
VI	Flood (Tropical Depression)	8 January 2009	10,556	43,247	declared
VII	Storm (Tropical Cyclone Thomas)	14 March 2010	39,101	39,427	declared
VIII	Drought	------ 1983	31,000	30,000	---
VIII	Storm (Tropical Cyclone Ami)	14 January 2003	30,000	30,000	declared
VIII	Storm (Tropical Cyclone Gene)	28 January 2008	N.A.	30,000	declared

Table-19 National Disaster Management Office's Assessment of Sectoral Impact of Cyclone Ami (14 January 2003) and Related Flooding[59]

Sector	Subsector	Cost (1,000 F$)	Total Cost (1,000 F$)
Public Sector	Housing	22,089	28,738
	Health	857	
	Agriculture	1,021	
	Education	4,771	
Economic	Taveuni Chamber of Commerce	114	65,277
	Labasa Chamber of Commerce	12,110	
	Tourism	144	
	Sugar Industry	13,600	
	Agricultural Commercial Corporation	39,319	
Infrastructure	Road and Bridge	2,725	5,793
	Regional Water Supply	1,180	
	Rural Water Supply	928	
	Sewerage	522	
	Public Building	438	
Utilities	Telecommunication	1,185	4,580
	Power Supply	3,395	

[59] "SOPAC Miscellaneous Report 678: Relationship between Natural Disasters and Poverty: A Fiji Case Study, 2009"

7.2 Hazard and Disaster Risks in Fiji

The Environmental Vulnerable Index (EVI)[60] hosted by UNEP includes every country of the world with the cooperation of various organisations like SOPAC.

EVI is composed of fifty Indicators[61] in seven categories: Climate Change (CC), Biodiversity (CBD), Water (W), Agriculture and Fisheries (AF), Human Health (HH), Desertification (CCD) and Natural Hazard (D). EVI indicates the overall level of environmental vulnerability of each country. Furthermore, the vulnerability of each of the 50 indicators can be recognised by EVI Indicator. EVI Indicator estimates each index value (mainly the long-term average) by seven thresholds.

Table-20 indicates the integral evaluations of Fiji's environmental vulnerability to natural hazards based on the eleven EVI Indicators in the D category (natural hazards).

As a result, in Fiji, the items with the vulnerability level of 5 or above (very vulnerable to disaster) are floods, landslides and droughts. Table-21 also indicates that the disaster risks of gales, living environment and coastal inundation are high.

Future earthquakes and tropical cyclones will have an impact on population to the extent that they cause damage and losses to the built environment and crops,. As shown in Table-22, the PCRAFI model[62] estimates that there is a 40% chance in the next hundred years that one or more events in a calendar year will cause casualties exceeding 1,300 people in Fiji.

Table-20 Environmental Vulnerable Index in Fiji

#	Hazard	Disaster Risk	EVI In dicator	Comprehensive Evaluation[63]
1	Gale	Vulnerable to Cyclone Disasters	4	Very Vulnerable to Environmental Hazard in Fiji (Score: 3)
2	Drying Period	Vulnerable to Drought Disaster	5	
3	Humid Period	Vulnerable to Flood Disaster	7	
4	High-Temperature Period	Vulnerable to Heat Wave and Desertification and Water-Resources Disaster	1	
5	Low-Temperature Period	Vulnerable to Cold Disaster	1	
6	Volcanic Eruption	Vulnerable to Volcanic Eruption and Debris Flow Disaster	1	
7	Earthquake	Vulnerable to Earthquake Disaster	1	
8	Tsunami	Vulnerable to Tsunami Disaster	1	
9	Landslide	Vulnerable to Landslide Disaster	7	
10	Population Density	Vulnerable to Living Environment Disaster	3	
11	Coastal Habitation	Vulnerable to Coastal Inundation Disaster	3	

[60] "http://www.vulnerabilityindex.net/"

[61] The value of EVI Indicator ranges from one to seven, with seven being the most severe.

[62] "World Bank 2011: Pacific Catastrophic Risk Assessment and Financing Initiative (PCRAFI) Country Risk Profile: Fiji, 2011"

[63] The score of Comprehensive Evaluation ranges from one to four, with four being the most vulnerable.

Table-21 Indicators pertain to Climate change and disaster[64]

Number of Deaths	Drought	(person/year) a)	0
	Flood and Cyclone	(person/year) a	8
Number of Victims	Drought	(1,000 person/year) a)	8
	Flood and Cyclone	(1,000 person/year) a)	26
	Proportion of the Population	(%) a)	4.8
Economic Loss	Drought	(1,000 US$) a)	789
	Flood and Cyclone	(1,000 US$) a)	18,078
	Proportion of the GDP	(%) b)	17.1
Coast line		(km) c)	1,129
Population in Coastal Lowlands		(%) d)	17.6
Area of Coastal Lowlands		(%) d)	10.6

a) Yearly average value in 1971-2008, b) Yearly average value in 1961-2008,
c) Data in 2008, d) Data in 2000

Table-22 Estimated Losses and Casualties by Natural Perils

Mean Return Period (years)	**AAL**	**50**	**100**
Risk Profile: Cyclone			
Direct Losses			
(Million US$)	76.5	609.9	834.0
(% GDP)	2.5%	20.3%	27.7
Emergency Losses			
(Million UD$)	17.6	140.0	191.6
(% of total government expenditure)	2.4%	19.1%	26.1%
Casualties	126	988	1,292
Risk Profile: Earthquake and Tsunami			
Direct Losses			
(Million US$)	2.5	10.1	22.3
(% GDP)	0.1%	0.3%	0.7%
Emergency Losses			
(Million UD$)	0.0	2.1	4.4
(% of total government expenditure)	0.0%	0.3%	0.6%
Casualties	5	35	64

[64] "SPC-GSD: Relationship between Natural Disasters and Poverty: A Fiji Case Study, June 2009"

Mean Return Period (years)	**AAL**	**50**	**100**
Risk Profile: Tropical Cyclone, Earthquake and Tsunami			
Direct Losses			
(Million US$)	79.1	620.1	844.8
(% GDP)	2.6	20.6	28.1
Emergency Losses			
(Million UD$)	18.1	141.0	193.4
(% of total government expenditure)	2.5%	19.2%	26.3%
Casualties	131	996	1,323

7.3 Climate Mechanism in Fiji

Most significantly meteorological phenomena in Fiji are tropical cyclone, SPCZ (South Pacific Conversion Zone) (Fig.18) and ENSO (El Nino Southern Oscillation) (Fig.19).

The SPCZ and ITCZ (Intertropical Convergence Zone). Are permanent fixtures in the Pacific. These two convergence zones are formed by the convergence of northeast trade wind and southeast trade wind across the equator. Slight changes in these convergence zones causes heavy rain and drought in Fiji. Therefore, in weather forecasting, attention should be paid to the location and strength of SPCZ as well as to the tropical cyclones and tropical depressions.

ENSO plays the most important role in the seasonal weather forecast in the Pacific. ENSO is a tropical atmospheric oscillation with a timespan of several years, and at present the process of the growth and decline of the El Nino phenomenon is precisely being observed in relation to ENSO. The Southern Oscillation Index, one of the indexes of trade wind strength, is defined as follows:

(Southern Oscillation Index) = (Monthly Average Pressure Deviation in Tahiti) − (Monthly Average Pressure Deviation in Darwin)

Fig.19 indicates that regarding the red zone (El Nino Year) and the blue zone (La Nina Year), the oscillation of the surface sea temperature is quite different between Oceania (A and D area in the map) and Chile (D area).

It is remarkable that the red zone in 1998 coincides with the huge drought disaster that occurred that same year in Fiji[65].

[65] See "Table-17 in Annex-7: Disaster Risks in Fiji"

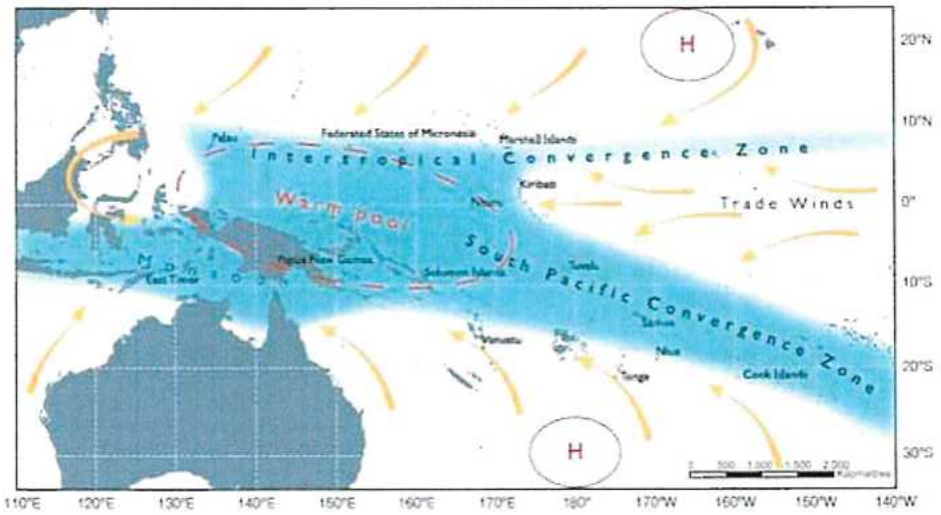


Fig.18 Typical Weather System in South Pacific (November to March)[66]

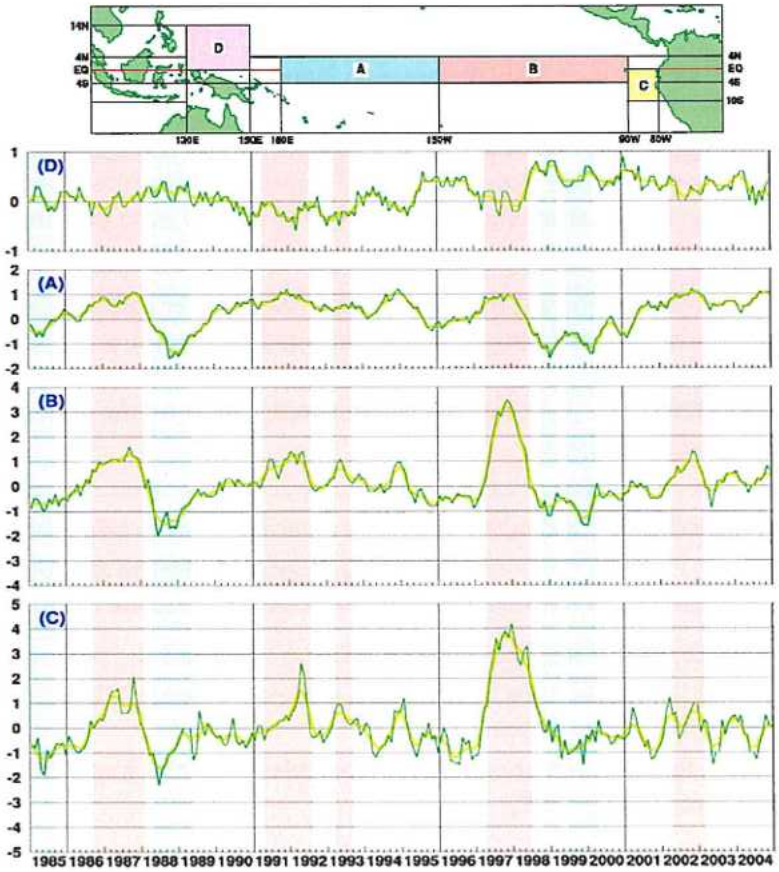


Fig.19 Time Series of Difference between the Standard Sea Surface Temperature and the Ones in the Monitoring Areas[67]

---

[66] "Aus-AID and FMS: Pacific Climate Change Science Program, 2011"
[67] "Japan Meteorological Agency: Abnormal Climate, 2005"

Annex-8: List of Administrators for Public Facilities in Fiji

It is crucial for accomplishing DRR goals to clarify de facto administrators[68] for public facilities. When there is more than one administrator in the same public facility, it is necessary to adjust and define responsibilities to avoid confusion and mismanagement.

Table-23 Main Administrators for Public Facilities with respect to DRR in Fiji

#	Public Facility		Main Administrator	Specific Example
1	Road	Highway	Fiji Roads Authority (FRA)	・Road Safety Facility
2		General Road		・Road Safety Facility
3		Road Adjunct Facility		・Bridge ・Tunnel ・Culvert
4		Disaster Prevention Facility		・Roadside Slope Protection Work
5		Adjunct Facility		・Pavement ・Side Ditch
6		Water Pipe	(WAF) Water Authority of Fiji	・Water Pipe
7		Roadside Pole	Fiji Electric Authority (FEA)	・Roadside Pole
8		Roadside Tree	Fiji Roads Authority (FRA)	・Roadside Tree
9		Traffic Control	Fiji Police Force (FPF)	・Traffic Light ・Traffic Sign
10	River	River Basin	Ministry of Waterways and Environment	・Flood Control Dam ・Retarding Basin ・Regulating Reservoir
11		Water Channel and River Structure		・River Levee ・Training Dike ・Gabion work ・Revetment Work ・Flood Gate ・Drainage Pump Station
12		Inland Flood Facility	City/Town Council	・Barrage ・Drain ・Irrigation Channel
13	Maritime and Air Transport	Ports and Harbor Facility	Fiji Ports Cooperation Limited (FPCL)[69]	・Wharf ・Pier
14		Jetties and Landing	Fiji Roads Authority (FRA)	・Jetty ・Landing
15		Sea-based Facility	Marine Safety Authority of Fiji (MSAF)	・Lighthouse

[68] The administrators are based on the governance scheme for Fiji on 1st August 2018.

[69] Most stocks of the FPCL have been held by a foreign company. This would pose a potential threat for managing port and harbor facilities in Fiji.

#	Public Facility		Main Administrator	Specific Example
16		**Airport Facility**	Airports Fiji limited (AFL)	・Airport Building ・Control Tower ・Runway
17	**Sea Coast**	**Coastal Erosion Countermeasure**	Ministry of Infrastructure and Transport (MOIT)	・Coastal Work ・Concrete Block Breakwater ・Jetty-type Wharf
18		**Storm Surge Countermeasure**	National Disaster Management Office (NDMO) or Fiji Roads Authority (FRA)	・Sea wall ・Sea Dike
19	**Forest**	**Mountain Forest**	Ministry of Forests	・Forest Protection ・Afforestation for Erosion Control ・Hillside Planting Work
20		**Mangrove Forest**	Ministry of Fisheries	・Mangrove Forest Protection
21	**Land**	**Landslide**	Ministry of Lands and Mineral Resources	・Slope Protection Work ・Drainage Work
22		**Steep Slope**		・Steep Slop Prevention Work
23		**Sediment Discharge**	*not yet settled*	・Sediment Control Work ・Sabo (Erosion Control) Dam
24	**Observation Facility**	**Meteorology**	Fiji Meteorological Services (FMS)	・Meteorological Observation Station
25		**Hydrology**		・Hydrological Observation Station
26		**Oceanography**		・Tidal Level Observation Station
27		**Seismology**	Mineral Resources Division (MRD)	・seismic Observation Station
28	**Building**	**Government Building**	Each Government Agency	・Government Building
29		**Dangerous Facility**	National Fire Authority (NFA)	・Protection Facility for Plants and Storage Tank with Dangerous Materials
30		**Market**	City/Town Council	・Market Building
31	**School**	**County School**	Ministry of Education, Heritage and Arts	・School Building
32		**Independent School**		・School Building
33	**Evacuation**	**School**	Ministry of Education, Heritage and Arts	・Evacuation Centre ・Guidance Mark
34		**Church**		
35		**Community Centre**	Village/Community	
36	**Health**	**Hospital**	Ministry of Health and Medical Services (MOHM)	・Hospital Building

#	Public Facility		Main Administrator	Specific Example
37	Storage	Food Stock Facility	Ministry of Agriculture	・Food Stock Facility
38		Emergency Supply Facility	*not yet settled*	・Storage Facility ・Container Storage
39	Sewage		Water Authority of Fiji (WAF)	・Sewage Treatment Plant ・Drainage
40	Water Supply	Water Supply in Main Island	Water Authority of Fiji (WAF)	・Water Treatment Plant ・Water Pipe (Service Pipe)
41		Water Supply in Remote Island	Water Department of Ministry of Infrastructure and Transport (MOIT) and/or Village	・Water Treatment Plant ・Water Pipe (Service Pipe)
44	Waste	Domestic Waste	Ministry of Waterways and Environment	・Waste Disposal Site ・Waste Disposal Centre
45		Industrial and Trade Waste	Ministry of Industry, Trade and Tourism	・Waste Disposal Site ・Waste Disposal Centre
46		Medical Waste	Ministry of Health and Medical Services (MOHM)	・Medical Waste Treatment Facility
47	Park	National Park Facility	Ministry of Education, Heritage and Arts	・Play Facility ・Public Restroom
48		Urban Park Facility	City/Town Council	・Play Facility ・Public Restroom
49	Electricity	Electric Generating Facility	Energy Fiji Limited (EFL)	・Dam-type Power Station ・Conduct-type Power Station ・Thermal Power Station
50		Community-wide Electric Generator in Remote Island	Department of Energy, Ministry of Infrastructure and Transport (MOIT)	・Private Electric Generator
51		Renewable Energy Facility	Energy Fiji Limited (EFL)	・Wind Power Generator Device ・Solar Power Generation Device
52		Community-wide Solar Energy Generation in Remote Island	Department of Energy, Ministry of Infrastructure and Transport (MOIT)	・Solar Power Generation Device
53		Substation Facility	Energy Fiji Limited (EFL)	・Substation Facility
54		Power Transmission		・Power Pole ・Power Grid
55	Broadcasting	TV Facility	Ministry of Civil service and Communications	・Tower
56		Radio Facility		・Tower
57	Telephone	Land-line Phone Facility	Telecom Fiji Limited (TFL)	・Telephone Line
58		Mobile Phone Facility	Vodafone and Digicel	・Tower

(random order)

Annex-9: Consultation

Consultations together with workshops were conducted with relevant organisations concerning DRR during August and September 2017. The focal points of the organisation are as follows:

Table-24 Participants in Disaster Risk Reduction Policy Consultations

#	Focal Points	
	Duty Position	**Organisation**
1	Commissioner Central	Ministry of Rural and Maritime Development (MORM)
2	Commissioner Eastern	
3	Commissioner Northern	
4	Divisional Planning Officer	Commissioner Western Office
6	District Officer	Ministry of Rural and Maritime Development (MORM)
7	ACC Specialist	National Disaster Management Office (NDMO)
8	CBO Advocate	Ba Province
9	Director Engineering Services	Suva City Council
10	Chief Executive Officer	Nausori Town Council
11	Chief Executive Officer	Lami Town Council
12	Principle Economic Planning Officer	Officer of the Prime Minister (PMO)
13	Principal Legal Officer	Office of the Attorney -General (AGO)
14	Deputy Secretary	Ministry of Economy
15	Director Climate Change	Ministry of Economy (Climate Change Unit)
16	Deputy Governor	Reserve Bank of Fiji
17	Director Oceania Bureau	Ministry of Foreign Affairs
18	DS Policy	
19	Director Housing	Ministry of Local Government, Housing and Community Development (MOLG)
20	Director (Town and Country Planning)	
21	Project Coordinator	
22	Director	Ministry of Environment
23	Acting Director Extension	Ministry of Agriculture
24	Technical Officer	Ministry of Waterways
26	Director AMU	Ministry of Education
27	Director	Fiji Meteorological Services

#	Focal Points	
	Duty Position	**Organisation**
28	Policy and Research	Ministry of Lands and Mineral Resources
29	Director	Mineral Resources Department (MRD)
30	Senior Administrative Officer	Ministry of iTaukei Affairs
31	Senior Land Use Planner	iTaukei Land Trust Board (TLTB)
32	Senior Engineer	Ministry of Infrastructure and Transport (MOIT)
33	Head of Risk and Assurance	Fiji Roads Authority (FRA)
34	Manager Strategic Planning	Water Authority of Fiji (WAF)
35	JICA Expert	Department of Energy
36	SPFSO	Fiji Ports Corporation LTD
37	National Climate change, Health Emergency and Disaster Risk Management	Ministry of Health and Medical Services (MOHM)
38	Climate Change and Disaster Risk Reduction Officer	Ministry of Women, Children and Poverty Alleviation
39	Executive Officer	Ministry of Forests
40	A/Divisional Forestry Officer	Ministry of Forests (Lautoka)
41	Deputy Secretary	Ministry of Fisheries
42	A/Senior Fisheries Officer	Ministry of Fisheries (Lautoka)
43	Staff Officer Operations	Republic Fiji Military Forces (RFMF)
43	Director Operations	Fiji Police Force (FPF)
44	Chief Fire Officer	National Fire Authority (NFA)
45	Assistant Commissioner	Fiji Corrections Services (FCS)
46	Senior Tourism Officer	Ministry of Tourism
47	Divisional Manager	Ministry of Youth and Sports
48	Project Technical Officer	Ministry of Employment, Productivity and Industrial Relations
49	Director /PA	Ministry of Civil Service
50	Team Leader, Engineering Department	Telecommunications Authority of Fiji (TAF)
51	Immigration Inspector	Immigration Department
52	Manager Reconciliation and Reporting	Fiji Business Disaster Resilience Council (FBDRC)
53	Chairperson	Fiji Commerce and Employers Federation (FCEF)
54	Chief Executive Officer	Fiji Hotel and Tourism Association
56	Regional Coordinator	Pacific Islands Forum Secretariat (PIFS)
57	Manager Disaster Reduction Programme	Pacific Community (SPC)

#	Focal Points	
	Duty Position	**Organisation**
58	Climate Change Specialist	Asian Development Bank (ADB)
59	Sub Regional Coordinator	United Nations International Strategy for Disaster Reduction (UNISDR)
60	Head of Office	United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)
61	FBDRC	United Nations Development Programme (UNDP)
62	Emergency Specialist	United Nations International Children's Emergency Fund (UNICEF) Pacific
63	Deputy Head of Delegation	Delegation of the European Union for the Pacific (EU)
64	First Secretary Climate Change and Disaster management	Australian High Commission, Fiji
65	Counsellor (Development)	New Zealand High Commission, Fiji Bilateral and Pacific Regional
66	Deputy Team Leader	Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ)
68	Professor	Tohoku University, Japan
69	Associate Professor	Western Washington University, USA
70	Director General	Fiji Red Cross Society
71	Project Manager CDRR	Save the Children
72	Volunteer	Australian Civil Corps (ACC)
73	Country Manager	Live and Learn Programme
74	Executive Producer Director	fem LINK Pacific
76	Emergency Coordinator	Adventist Development and Relief Agency (ADRA)
77	WASH Coordinator- OXFAM	Oxfam
78	Community Engagement Coordinator	World Conservation Strategy (WCS)
79	Project Team Leader	Partners in Community Development Fiji (PCDF)
80	Assistant Coordinator	European Communication Research and Education Association (ECREA)
81	DRR Officer	Ola Fou Fiji
82	Operation Management	Transcend Oceania
83	Climate Change and DRR Officer	World Wide Fund for Nature (WWF) Pacific
84	Manager	Pacific Community-focus Integrated Disaster Risk Reduction (PCIDRR)-Fiji
85	Director	National Trust of Fiji Islands

(random order)

Annex-10: Sectoral Implications of Disaster Risks in Fiji

Sectoral Implications of disaster risks including climate change are the results through the consultations with relevant organisations concerning DRR.

Table-25 Sectoral Specific Disaster Impacts and Key Areas for Disaster Risk Reduction

(Quoted from one part of "The Republic of Fiji National Climate Change Policy, 2012")

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Agriculture	Impact on the national economy as Fiji is an agro-economy country; - Extreme events such as high rainfall, floods and droughts can affect livestock production and management; - Land productivity could be reduced due to salt water intrusion, coastal and river-bank erosion, exposure to salt water spray, and strong rain and wind; - Floods, droughts and cyclones may physically damage crops, farm equipment and infrastructure; - Reduced food security in terms of food production, food quality, nutritional availability and access; - Increase in pests and diseases; - Increase in family and community conflicts due to food shortage;	- Gender inclusive farming practices that maintain or increase forest cover (agroforestry); - Intensification of small scale commercial and subsistent agricultural activities to optimise production can minimise forest clearance; - Greater public information disseminated through radio including the community radio on food security and agriculture programmes; - Application of gender policy in recognition of the key role of women as first responders in terms of food security;	- Diverse traditional crop species that are resilient to floods, drought and saltwater; - Diverse traditional crop species that are resilient to disease spread; - Traditional agroforestry and integrated farming practices; - Availability of information and clear information-communication channels;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Communication	· Cyclones, storm surges and other extreme weather events could damage infrastructure, leading to disruption of communication; · Fire also contributes to damages to infrastructure; · Localised infrastructure outages can cause network bottle necks;	· Communication network providers should have redundant infrastructure and network configurations including independent power sources from public power grids; · Sufficient network capacity to cater for upsurges in telecommunication traffic in and after a disaster and the ability to reroute traffic around a localised disaster; · Ability to prioritise telecommunication traffic related to a disaster; · Focus on early warning and preparedness stages through a consistent public awareness campaign throughout the year in collaboration with key partners; · Dedicated Public Emergency Service with links to broadcast networks; · Public awareness on the effects of fires towards telecommunications infrastructure; · Operators to consider not exposing its infrastructure which may be vulnerable to fire;	· Wide telecommunication and internet networks with good national coverage provide channels for education, emergency calls and warning dissemination; · Mobile phone services facilitate instant and easily accessible funds, transfer from overseas, which can assist in responding to disasters and damages; · Dedicated role of the community radio network in disaster response through use of and innovative radio technology; · Operator should have the ability to communicate to all its subscribers in a short period of time; · Operators may be requested to share infrastructure to ensure to overall network becomes normalised faster; · General public must be aware of the different types of messages received pertaining to disasters; · Messages broadcast through any means must be easily understand by the public;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Disaster Management and Rural Development	· Damage to rural development infrastructure consequently affecting rural social and economic status;	· Developing strategies in line with the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and the National Gender Policy to ensure environmental issues, including climate change and disasters require gender-inclusive policies, reforms and laws to overcome existing inequalities which are exacerbated at times of disaster;	· Alleviate and mitigate threats and ensure that rural women enjoy a safe, clean and healthy environment; · Ensuring the protection and security of rural women and girls in all phases of disasters and other crises, ranging from early warning to relief, recovery, rehabilitation and reconstruction;
Education	· Damage to school facilities; · Damage to infrastructure access to schools;	· Safer school projects should be promoted; · Utilise a school broadcasting unit at the Fiji Broadcasting Corporation (FBC: AM radio) to carry key messages on CCA and DRR; · DRR information including preparedness messages should target children including via community media platforms;	· A dedicated broadcast frequency should be allocated for the Schools Broadcast Programme and other education programmes via the Government PSB funding allocation to the Fiji Broadcasting Corporation (FBC);

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Energy and Energy Infrastructure	· Cyclones, storm surges and other extreme weather events could damage generation, transmission and distribution system in the power system; · Massive damage on the power system may lead to prolonged power outage which may influence economic activities; · Decreased rainfall could increase the risk of scarce potential of hydro power generation and shortage of energy; · Damage to distribution system may cause potential risk of life-related hazard such as electrical shock;	· Diversification of energy sources including renewable energy; · Strong and resilient transmission and distribution system against cyclones; · Awareness campaign for customers to prepare for prolonged power outage; · Minimisation of deforestation caused by the construction of power stations and substations (e.g. hydro-dams); · Coordination with other utilities to set up the regional relief mechanism for emergency supply of equipment, staff, vehicles, etc.; · Information/advice should be pre-produced to be ready for broadcast via the public emergency broadcast systems;	· Share of generated energy by renewable; · Reserve margin of power generation facilities; · Improved design standard for transmission and distribution system against cyclones; · Installation of additional circuits for transmission and distribution networks to keep N-1 conditions; · Installation of additional transformers for substations to keep N-1 conditions;
Environment	· Increase the vulnerability of ecosystems to the adverse impacts of climate change and disasters; · Breeding ground demolition due to major soil erosion; · Habitat destruction;	· Coordinating and collaborating with operational stakeholders , line ministries and partners in employing an effective Eco-DRR, Eco based adaptation and Eco based mitigation approaches;	· Assimilated approach to biodiversity conservation through ridge to reef planning that involves the community (bottom up approach); · Awareness raising for improve organic farming promoting environmental friendly approaches and is inclusive of climate and disasters determinants;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Forests	· Forest health could be reduced due to salt water intrusion, coastal and river-bank erosion and exposure to salt water sprays and heat stress on soils; · Floods, droughts and cyclones may physically damage forest plantations, natural forest and associated infrastructure;	· Sustainable management of forests; · Promoting reforestation, afforestation, and enrichment planting; · Sustainable management of mangrove areas and swamp land; · Information/advice should be pre-produced to be ready for broadcast via the public emergency broadcast systems;	· Healthy forest ecosystems increase the resilience of forest communities through the provision of various ecosystem services and food security; · Forest maintain land stability and waterway conditions;
Health	· Increased incidence and severity of vector-bone, zoonotic and infectious diseases, e.g. dengue fever; · Increased food and water-bone diseases, e.g. diarrhoeal illnesses; · Increased injuries and long-term consequences of extreme weather event; · Impacts on mental health, food and water security and malnutrition; · Increased disaster-related Post-Traumatic Stress Disorder (PTSD); · Increased cardiovascular respiratory and renal diseases; · Poor responses to maternal and child health due to damage of infrastructure and inability to access health centres;	· Upgrade health centres to withstand the onslaught of severe (category-5) storms; · Upgrade health centres to ensure doctors/nurses are able to support pre and post natal mothers and babies in the disaster preparedness stage; · Health care programmes should be pre-produced to be ready for broadcast via the public emergency broadcast systems; · Safer hospitals project should be promoted;	· Traditional knowledge of various medicines and cures from locally available sources; · Strong social safety nets within communities that increase resilience to extreme weather events; · Ensure rural women has access to adequate food and nutrition, taking into account the voluntary guidelines to support the progressive realisation of the right to adequate food in the context of national food security;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Land Management	· Loss of soil moisture due to extreme dry weather; · reducing the arability of the land for agricultural purpose; · Increased weather condition such as cyclones, torrential rainfall can ultimately lead to loss of soil content which consequently decrease the utility of the land;	· Integrated approach in the development of land, ensuring that DRR/CC aspect is considered with relation to the impacts to the environment; · Ensuring the community are aware of their vulnerable areas and are able to make prudent decisions in development of their land; · Integrating reforestation in policy and planning to maintain soil balance and ultimately reduce the impact of climate change and disaster;	· Encourage communities in eco based income generating projects that discourage deforestation; · Improving community, private and governmental collaborative network; · Encourage a culture of reforestation in the community; · Increase education and awareness in land management, allowing for a more well informed community;
Marine and Fisheries	· The combination of the rainfall experienced during cyclone activity and storm events with steep bare slopes causes rapid runoff with river floods and sediment discharges into the near-shore seagrass and coral reef habitats, which has adverse impacts on the fisheries sector; · More stormy weather and intense cyclones may render fishing trips unsafe and less productive;	· Mangrove areas and coral reefs and other coastal zones provide physical buffers to extreme weather events; · Healthy reef ecosystems are more resilient to the impacts of hazards;	· Information for mariners and fisher-folk (men and women) should be pre-produced to be ready for broadcast via the public emergency broadcast systems;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Tourism	· Damage to buildings and infrastructure from storm surges, cyclones, floods, tsunamis, salt-water spray, coastal erosion and landslides; · Increased incidents and injuries with international visitors and industry staff alike; · Disruption in visitor arrivals and earnings due to changing weather conditions and patterns, disease outbreaks, hygiene and safety, degradation of pristine natural attractions and damage to infrastructure; · Disruption of land, sea and air transport to facilities around the country; · Increasing costs to implement DRR measures that would subsequently be absorbed by tourists and related service providers; · Growth in the tourism sector may be hindered by the need for increased capital investment in recovery and/or reconstruction work;	· Development of a risk management framework under the Fijian Tourism Plan 2021 which involves the identification of risks and contingency action plans for mitigating the potential impact of each risk; · Encouraging fossil fuel substitution with renewable energy in visitor facilities (green tourism); · Conducting disaster awareness; · Conducting specialised disaster preparedness drills; · Enforcing building code to ensure disaster resilience; · Having in place PR measures that focus on recovery efforts in our key markets; · Prepare and implement a tourism crisis communication framework with a focus on effective stakeholder communication and collaboration in recovery efforts for tourism areas affected by these high-impact events; · Information/advice should be pre-produced to be ready for broadcast via the public emergency broadcast systems;	· Closer collaboration between government, industry and key utility bodies; · Implementation of a risk management framework that identifies crisis and respective mitigation measures; · Implementation of a tourism risk communication framework;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Transport and Transport Infrastructure	· Cyclones, storm surges or other extreme weather events could disrupt land, sea and air transportation; · Failure of transport infrastructure could increase the impacts of extreme weather events by isolating victims from food, water and medical treatment; · Failure of transport infrastructure could increase adverse impacts by disrupting export and import activities, thus generating both output reduction of local manufactured goods and price increase of consumer goods; · Damages to road infrastructure due to disasters, e.g. road slip or blocked by fallen trees, power poles or landslide; · Physical asset failure (bridges / jetties damaged or washed away); · No up-to-date emergency operations recovery plan; · FRA fails to implement emergency response team, hence creating stakeholder issues; · FRA fails to address infrastructure damages in timely manner which leads to economical impact;	· Establishment of national redundancy system in transportation facility; · Information/advice should be pre-produced to be ready for broadcast via the public emergency broadcast systems; · Asset Management Strategy Plan 2014; · Rehabilitation and Resealing programme in place; · Critical Bridges/jetties replacement or maintenance plan in place; · FRA Emergency Operations Recovery Plan; · Regular Staff awareness on Business Continuity & Emergency Operations Recovery Plans; · Ensure that other infrastructure equipment such as mobile units, generators, battery back up system are installed at key locations and is reliable for operations during disaster;	· Construction of another interisland wharf is urgently needed because road and international shipping have already established dual systems such as Queens Road and Kings Road. Why not interisland shipping; · Implementation of Integrated Asset Management Planning System; · Infrastructure Business Continuity Planning (BCP); · Adequate reserve funds available for disaster recovery rehabilitation programmes; · Relocate plant & machinery to strategic locations allowing rapid access to disaster areas; · Create nation wide and regional pools of hard to procure critical equipment and materials that can vacillate rapid recovery;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Urban Development and Housing	· Extreme weather events such as floods and cyclones incur an economic cost to townships; · Extreme weather events or disasters will affect lives of people in poorly build or poorly located houses---marginal communities are likely to be more severely affected; · Added pressure on services and utilities to cope with demands brought about by extreme weather events such as heat-waves, water shortages and disease outbreaks; · Land loss and reduction in arable land could lead to migration in urban centres, resulting in over-crowding; · Floods, storm surges, cyclones and other extreme weather events can damage houses and residential buildings, and have the potential to put their occupants in danger during or after an extreme weather events;	· Information/advice should be pre-produced to be ready for broadcast via the public emergency broadcast systems;	· Some traditional building practices provide resilience to extreme weather events;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Waste and Waste Infrastructure	· Hazards will impact on landfill management practices; · Overflow of wastewater treatment could result in contamination of water supply and waterways; · Cyclones, storm surges and droughts damage infrastructure, disrupt wastewater collection and treatment, and contaminate water supply and waterways;	· Promotion of household composing; · Improvement to landfill management; · Increased recycling facilities and collections; · Information/advice should be pre-produced to be ready for broadcast via the public emergency broadcast systems;	· Provide debris management ; · Collection of waste; · Encourage communities on household composing;
Water Resources and Water Infrastructure	· Portable and non-portable water supply will be affected as a result of decreased rainfall, sea level rise and saltwater inundation/intrusion; · Extreme rainfall events could result in water contamination and overflow of dams; · Cyclones, storm surges or other extreme weather events could damage water supply infrastructure and disrupt water treatment and distribution;	· Ensuring women are equal participants in water management committees; · Information/advice should be pre-produced to be ready for broadcast via the public emergency broadcast systems;	· Diverse water supply sources (surface water, aquifers and freshwater lenses); · Upscale local innovation practices to store and manage water including the use of underground water tanks to prevent damage;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Waterways	· Cyclones damage infrastructure; · Floods damage drainage and irrigation infrastructure; · Heavy rainfalls induce massive soil erosion and siltation of waterways; · Heavy rainfalls increase river bank erosions; · Droughts impact availability of irrigation water, dry up creeks, water sources, boreholes, wells etc.; · Climate change impacts in frequency and intensity of cyclones, floods, droughts; · Extreme rainfall events could exceed the capacity of storm-water drainage networks; · Cyclones, droughts, storm surges and other extreme weather events could damage storm-water infrastructure and disrupt drainage through blockage or excessive water flow;	· Building/constructing buildings to withstand catergory-5 cyclones; · Flood proofing of drainage & irrigation infrastructures; · Dredging of silted rivers, creeks, drainage and waterways; · Land use management practices fully implemented. · Planting of trees on slopes and vacant slopes; · Watershed management, construction of retention dams within rivers/creeks; · Stabilising of river banks by planting trees along river banks and creeks; · Planting of mangroves in coastal areas; · Drought resilient projects; · Rainwater harvesting projects; · Climate proofing of infrastructure;. · Climate resilient, CCA adaptation projects;	· Massive/extensive planting of trees on slopes, river and creek banks; · Massive/extensive planting of mangroves in coastal areas; · Rainwater harvesting – small & larger projects; · Awareness about climate change impacts and contributing in reducing carbon;

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Women /Welfare (1/2)	· Specific threats are posed to rural women by climate change, disasters, land and soil degradation, water pollution, droughts, floods, desertification, pesticides and agro-chemicals, extractive industries, monocultures, bio-piracy and loss of biodiversity; Displacement due to disaster: · The gender and protection consequences of internal and cross-border and climate-induced migration; Community-governance: · Is seen as a critical requirement for sustainable resilient development in the Fiji. Remote islands, accessibility limitations and unique cultural structures contribute to the importance of community-based-protection. However, this is a complex issue which requires acknowledgement of deep-rooted inequalities, with a view to identifying innovative and meaningful community-based risk governance; Invisible risk: · The enduring experience of living with disasters in Fiji suggests that the women, children, Persons with Disabilities (PwDs) and socially excluded groups constitute the most vulnerable segments of the society and are disproportionately affected by the negative impacts of any disaster. They have some	· Rural women, in particular, are not included in a homogenous group ; · Accelerated substantive equality, including by redistributing decision-making roles and resources, measures should be directed at women subjected to intersecting forms of discrimination, including rural women; · Government should develop policies and programmes ensuring the equal rights for disabled rural women and the accessibility of infrastructures and services; · States parties should ensure that older rural women have access to social services, adequate social protection, as well as economic resources and empowerment to live life with dignity, including through access to financial services and social security; · Disasters threaten gender core human rights such as the rights to life, safety and dignity as well as giving heightened importance to the right to non-discrimination and basic necessities (reflected in the guiding principles of the FRDP); Establish a common Information Management (IM) framework for the collection of Sex and Age Disaggregated Data (SADD), and develop gender indicators to inform policy making;	· Equality is brought to realisation at district, divisional and national level; · Recognise and support women-led ICT initiatives, which empowers rural women and girls and women with disabilities; · Enhance gender analysis of all DRR plans so that all projects are implemented only after participatory gender and environmental impact assessments have been conducted with full participation of rural women; · Use outreach and support programmes, awareness-raising and media campaigns; · Collaborate with women's rights groups to support the sensitisation of rural women and men, girls and boys, as well as local, religious and community leaders, with the aim of eliminating discriminatory social attitudes and practices, particularly those which condone gender-based violence; · There is a need for Fiji to Invest in information and undertake every effort to better understand invisible risks with an emphasis on the gender and social factors which contribute to vulnerability and capacity for DRR. Ensure continuity of financial support across the

Sector	Potential Disaster Impacts Disasters can lead to the following impacts:	Key Measures for Disaster Risk Reduction DRR can be achieved through:	Key Properties Contributing Resilience to Disaster
Women /Welfare (2/2)	additional vulnerability against different hazards and often remain *'invisible'* in disaster reduction or emergency response programmes. Additionally, different marginal groups and people in very low earning households are rather prone to be in disaster as they are usually poorest amongst the poor; and more vulnerable amongst the vulnerable. For example: Women are often vulnerable to sexual harassment in pre and post disaster situation. In some cases, after TC Winston, it was reported that some people took the opportunity of the people's distressed situation for robbery and sexual violence.	· Incorporate gender equitable, multi-sector approaches in Build Back Better strategies and within DRR preparedness, recovery and reconstruction programming; Include gender perspectives in adaptation and disaster reduction efforts at the national, regional and international levels – including in policies, strategies, action plans and programmes; · Recognize for the purpose of resource allocation the special vulnerabilities of women in relation to disasters and climate change, and develop partnerships with development agencies to ensure gender aware resource allocation.	humanitarian-development continuum on gender and social inclusion; · Prioritise collaboration with women's groups and frontline actors such as the Fiji Women's Crisis Centre (FWCC) and the Red Cross Society Fiji (RCSF) to promote meaningful inclusion of women's voices in local decision making; ·Gender and social risks are often invisible and can be neglected in development decisions. These considerations are key to ensuring that development is inclusive and resilient.

Annex-11: Glossary

Table-26 Technical Term Pertain to Disaster Risk Reduction

Term	Definition/Description	Source
Build Back Better (BBB)	The use of the recovery, rehabilitation and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating DRR measures into the restoration of physical infrastructure and societal systems and into the revitalisation of livelihoods, economies and the environment.	UNISDR, 2016[70]
Business Continuity Plan (BCP)	The *business continuity plan (BCP)* provide for measures to enable early recovery from damage caused by large-scale disasters, etc. and continuance of the minimum necessary business.	---
Capacity	The combination of all the strengths, attributes and resources available within an organisation, community or society to manage and reduce disaster risks and strengthen resilience.	UNISDR, 2016
Capacity Development	*Capacity development* is the process by which people, organisations and society systematically stimulate and develop their capacity over time to achieve social and economic goals. It is a concept that extends the term of capacity building to encompass all aspects of creating and sustaining capacity growth over time. It involves learning and various types of training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems and the wider enabling environment.	UNISDR, 2016
Climate Change	A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and in addition to natural climate variability observed over comparable time periods.	United Nations, 1992
Climate Change Adaptation	Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.	IPCC, 2007a
Climate Change Mitigation	In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more effectively for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other 'sink' to remove greater amounts of carbon dioxide from the atmosphere.	IPCC, 2007b
Community Based Organisation for Disaster Risk Reduction	*Community-based organisations for DRR* are disaster management organisations made up of volunteers from the community who independently carry out emergency activities within their local communities should disaster strike. Because advanced disaster management techniques are required to enable these groups to perform these emergency activities at actual disaster sites, they need to regularly receive guidance from disaster management organisations and the like while carrying out disaster readiness drills and training. Support from the government and local governments is essential if these organisations are to be maintained.	---

[70] Cited from "UNISDR Terminology 2016: Report of the Open-ended intergovernmental expert working group on indicators and terminology relating to Disaster Risk Reduction, December 2016".

Term	Definition/Description	Source
Contingency Planning	A management process that analyses disaster risks and establishes arrangements in advance to enable timely, effective and appropriate responses. *Contingency planning* results in organized and coordinated courses of action with clearly identified institutional roles and resources, information processes, and operational arrangements for specific actors at times of need. Based on scenarios of possible emergency conditions or hazardous events, it allows key actors to envision, anticipate and solve problems that can arise during disasters. *Contingency planning* is an important part of overall preparedness. Contingency plans need to be regularly updated and exercised.	UNISDR, 2016
Coping Capacity	*Coping capacity* is the ability of people, organisations and systems, using available skills and resources, to manage adverse conditions, risk or disasters. The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during disasters or adverse conditions. *Coping capacity* contribute to the reduction of disaster risks.	UNISDR, 2016
Disaster	A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and coping capacity, leading to one or more of the followings: human, material, economic and environmental losses and impacts.	UNISDR, 2016
Disaster Displacement /Relocation	Every year, a lot of people are forced to leave their homes because of floods, tropical storms, droughts, earthquakes and other natural hazards. Many find refuge within their own country, but some have to move abroad. The International Organisation for Migration (IOM) considers that most environmental migration/relocation will increasingly take place in the context of slow onset processes.	---
Disaster Loss Database	A set of systematically collected records about disaster occurrence, damages, losses and impacts, compliant with the Sendai Framework monitoring minimum requirements.	UNISDR, 2016
Disaster Management	The organisation, planning and application of measures preparing for, responding to and recovering from disasters.	UNISDR, 2016
Disaster Risk	The potential loss of life, injury, destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.	UNISDR, 2016
Disaster Risk Assessment (DRA)	A qualitative or quantitative approach to determine the nature and extent of disaster risk by analysing potential hazards and evaluating existing conditions of exposure and vulnerability that together could harm people, property, services, livelihoods and the environment on which they depend.	UNISDR, 2016
Disaster Risk Governance	The system of institutions, mechanisms, policy and legal frameworks and other arrangements to guide, coordinate and oversee DRR and related areas of policy.	UNISDR, 2016
Disaster Information	Comprehensive information on all dimensions of disaster risk including hazards, exposure, vulnerability and coping capacity related to persons, communities, organisations and countries and their assets.	UNISDR, 2016

Term	Definition/Description	Source
Disaster Risk Financing	Application of financial instruments as part of a systematic approach to managing disasters in order to anticipate, plan for, reduce, transfer and respond to natural hazard events. It is intended to capture various financial mechanisms and policy options that enable greater financial resilience to natural hazards. Application of financial instruments that share and transfer risk pre-disaster and will generate financial resources post-disaster. The best-known example is disaster insurance.	IPCC, 2012
Disaster Risk Information	Comprehensive information on all dimensions of disaster risk including hazards, exposure, vulnerability and coping capacity related to persons, communities, organizations and countries and their assets. Disaster risk information includes all studies, information and mapping required to understand the disaster risk drivers and underlying risk factors.	UNISDR, 2016
Disaster Risk Management (DRM)	*DRM* is the application of DRR policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.	UNISDR, 2016
Disaster Risk Reduction (DRR)	*DRR* is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contributes to strengthening resilience and therefore to the achievement of sustainable development.	UNISDR, 2016
Disaster Risk Transfer	A contractual process whereby the burden of financial loss (arising as a consequence of a natural hazard) is shifted to another party via the use of insurance or other financing instruments in return for a payment or premium.	IPCC, 2012
Early Warning System (EWS)	An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events.	UNISDR, 2016
El Nino-Southern Oscillation (ENSO)	The *El Nino* was initially used to describe a warm-water current that periodically flows along the coast of Ecuador and Peru, distributing the local fishery. It has since become identified with a basin-wide warning of the tropical Pacific Ocean east of the dateline. This oceanic event is associated with fluctuation of a global-scale tropical and subtropical surface pressure pattern called the Southern Oscillation. This coupled atmosphere-ocean phenomenon, with preferred time scales of two to about seven years, is collectively known as the *El Nino-Southern Oscillation (ENSO)*. It is often measured by the surface pressure anomaly difference between Darwin and Tahiti and the sea surface temperatures in the central and eastern equatorial Pacific. During an *ENSO* events, such that the sea surface temperatures warm, further weakening the trade winds. This event has a great impact on the wind, sea surface temperature and precipitation patterns in the tropical Pacific. It has climatic effects throughout the Pacific region and in many other parts of the world, through global teleconnections. The cold phase of *ENSO* is called *Nina*.	IPCC, 2007a
Evacuation	Moving people and assets temporarily to safer places before, during or after the occurrence of a hazardous event in order to protect them.	UNISDR, 2016

Term	Definition/Description	Source
Environmental Impact Assessment (EIA)	*Environmental impact assessments (EIA)* predict and evaluate the impact that large-scale development projects and similar initiatives are likely to have on the environment before those projects are carried out. They incorporate feedback from private citizens, local governments and other stakeholders while also assessing the situation from an expert perspective. They are a key part of the process that ensures that projects properly take the environment into account in the course of their implementation.	---
Exposure	The situation of people, infrastructure, housing, production capacity and other tangible human assets located in hazard-prone areas.	UNISDR, 2016
Extreme Weather Events	An event that is rare at a particular place and time of the year. Definitions of 'rare' vary, but an *extreme weather* event would normally be as rare as or rarer than the 10th or 90th percentile of the observed probability density function.	IPCC, 2007a
Gender Inequality	The equal enjoyment by women, girls, boys and men of rights, opportunities, resources and rewards; an equal say in the development process; and the same level of dignity and respect. Equality does not mean that women and men are the same but that they have the same power to make choices and the same opportunities to act on those choices.	Turnbull et al. 2013
Geographical Information System (GIS)	*Geographical information systems (GISs)* are a technology that comprehensively manages and processes data that includes positional information (geospatial information). They alsomake it possible to visually display that information, subject it to sophisticated analysis, and make prompt decisions. Geospatial information makes it possible to show conditions in a target area according to various themes, such as natural features, disasters, socioeconomic activity and more. This results in land use maps, geological maps, hazard maps and other thematic maps as well as urban planning maps, topographical maps, geographical names, ledger information, statistical information, aerial photos, satellite images and more. At the Fiji NDMO, the PacRIS database created under the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) is listed on the GEOPORTAL portal site.	---
Governance	The exercise of political, economic and administrative authority in the management of a country's affairs at all levels. It comprises mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences. *Governance* encompasses, but also transcends, the state. It encompasses all relevant groups, including the private sector and civil society organizations.	Turnbull et al. 2013
Greenhouse Gases	*Greenhouse gases* are those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere and clouds. This property causes the greenhouse effect. Water vapour (H_2O), carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4) and ozone (O_3) are the primary *greenhouse gases* in the Earth's atmosphere. Moreover, there are a number of entirely human-made chlorine- and bromine-contaminating substances, dealt with under the Montreal Protocol. Besides carbon dioxide, nitrous oxide and methane, the Kyoto Protocol deals with the *greenhouse gases* sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons'	IPCC, 2007b

Term	Definition/Description	Source
Hazard	A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.	UNISDR, 2016
Mitigation	The lessening or minimising of the adverse impacts of a hazardous event. The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. *Mitigation* measures include engineering techniques and hazard-resistant construction as well as improved environmental and social policies and public awareness. It should be noted that in climate change policy, "*mitigation*" is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change.	UNISDR, 2016
Multi-Hazard	*Multi-hazard* means the (1) selection of multiple major hazards that the country faces, and (2) specific contexts where hazardous events may occur simultaneously, cascadingly or cumulatively over time, and taking into account the potential interrelated effects. Hazards include (as mentioned in the Sendai Framework for DRR and in alphabetical order) biological, environmental, geological, hydro-meteorological and technological processes and phenomena.	UNISDR, 2016
No Regrets Strategy	A strategy in response to the threat of climate change which argues that energy-saving measures should be undertaken immediately to help reduce global warming and climate change. Even if the threat of climate change is not as pronounced as we now fear, the supporters of this strategy say would not need to be any regrets because we would have benefited from saving the energy.	Environ-mental Economic Dictionary
Normalisation	*Normalisation* refers to the idea of enabling persons with disabilities to participate in various kinds of activities as members of society in the same way as other ordinary citizens. The principle of *normalisation* was propounded by Bengt Nirje and has been spread as the basic philosophy of social welfare all over the world.	---
Post-Traumatic Stress Disorder (PTSD)	*Post-traumatic stress disorder (PTSD)* is a mental disorder that can develop after a person is exposed to a traumatic event, such as disaster, sexual assault, warfare, traffic collisions, or other threats on a person's life. Symptoms may include disturbing thoughts, feelings, or dreams related to the events, mental or physical distress to trauma-related cues, attempts to avoid trauma-related cues, alterations in how a person thinks and feels, and an increase in the fight-or-flight response. These symptoms last for more than a month after the event. Young children are less likely to show distress but instead may express their memories through play. A person with *PTSD* is at a higher risk for suicide and intentional self-harm.	WIKIPEDIA
Preparedness	The knowledge and capacity developed by governments, response and recovery organisations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current disasters. *Preparedness* is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises.	UNISDR, 2016

Term	Definition/Description	Source
Prevention	Activities and measures to avoid existing and new disaster risks. *Prevention* expresses the concept and intention to completely avoid potential adverse impacts of hazardous events. While certain disaster risks cannot be eliminated, *prevention* aims at reducing vulnerability and exposure in such contexts where as a result the risk of disaster is removed.	UNISDR, 2016
Reconstruction	The medium and longer-term rebuilding and sustainable restoration of resilient critical infrastructures, services, housing, facilities and livelihoods required for full functioning of a community or a society affected by a disaster, aligning with the principles of sustainable development and Build Back Better, to avoid or reduce future disaster risk.	UNISDR, 2016
Recovery	The restoring or improving of livelihoods, health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster affected community or society, aligning with the principles of sustainable development and Build Back Better, to avoid or reduce future disaster risk.	UNISDR, 2016
Resilience	The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.	UNISDR, 2016
Response	Actions taken directly before, during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.	UNISDR, 2016
Risk Assessment	A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods or the environment on which they depend	ADB, 2013
Risk Communication	*Risk communication* is the cooperative work of implementing DRR measures based on a shared awareness of and shared information on disaster risks among communities, government agencies and other stakeholders, all with a commitment to building teamwork. *Risk communication* is not limited to disaster management educational and public awareness activities; it also includes the implementation of measures that involve all-inclusive community activity from the standpoint of each individual actor and based on a proper understanding of regional risks.	---
Risk Transfer	The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.	UNISDR, 2016
Slow Onset Disaster	Most of the 'natural' disasters we hear about arrive rapidly and in the case of earthquakes, with no warning. They are *rapid onset disasters*. On the other hand, droughts are relatively *slow onset disasters*. Climate change, environmental degradation and desertification are very slow onset events, but can and should be considered as disasters in terms of the damage and disruption to lives that they may or indeed already do create.	HP of Development Workshop (DW)

Term	Definition/Description	Source
Storm Surge	Then temporary increase, at a particular locality, in the height of the sea due to extreme meteorological conditions (low atmospheric pressure and/or strong winds). The *storm surge* is defined as being the excess above the level expected from the tide variation along at that time and place.	IPCC, 2007a
Structural and Non-Structural Measures	*Structural measures* are any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques or technology to achieve hazard resistance and resilience in structures or systems. *Non-structural measures* are measures not involving physical construction, which use knowledge, practice or agreement to reduce disaster risks and impacts, in particular through policies and laws, public awareness raising, training and education.	UNISDR, 2016
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.	UNFCCC
Timeline Disaster Risk Reduction	*Timeline DRR* seeks to save citizen lives while minimizing economic damage. Timelines define detailed disaster management activities and activity schedules as well as the roles of various organisations in order to define three key elements: *who*, *what* and *when*. They are then used to guide DRR tasks.	---
Underground Dam	An underground wall functioning as an *underground dam* is provided at the peripheral edge of the freshwater lens in such a manner as to surround the freshwater lens.	---
Vulnerability	The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.	UNISDR, 2016
Vulnerable Group	Any collective or group that has the propensity or predisposition to be adversely affected, such as a household, community, country, and their situation, that influences their capacity to anticipate, cope with, resist and recover from an adverse pressure*). In case of a disaster special attention should be directed toward women, children and youth, persons with disabilities, poor people, foreign tourists, volunteers, the community of practitioners, older persons, the LGBT community or person of diverse sexual orientation and gender identity. SOGIESC or people with diverse 'sexual orientation and gender identity and expression and sex characteristics' is the preferred term/acronym for LGBTQI persons in Fiji**).	*) FRDP **) inter agency

(random order)

Annex-12: References

ADB, 2013: Investing in Resilience: Ensuring a Disaster-Resistant Future, Manila: ADB (http://reliefweb.int/sites/reliefweb.int/files/resources/investing-in-resilience.pdf)

ADB Institute, 2015: Disaster Risk Management in Asia and the Pacific

Alexander: Earthquake and gender, ALERT, 2013

Aus-AID and FMS: Pacific Climate Change Science Program, 2011

Cabinet Memorandum: Information on Fiji Cluster System, May 2017

COP23 Gender Action Plan: COP Presidency Announces First Gender Action Plan, Highlights the Role of Women in Climate Action (https://cop23.com.fj/cop23-presidency-announces-first-gender-action-plan-highlights-role-women-climate-action/)

FRDP: Framework for Resilient Development in the Pacific 2017-2030. (http://gsd.spc.int/frdp/)

Ministry of Strategic Planning, National Development and Statistics: Green Growth Development, 2014

IADB, IMF, OAS, and the World Bank: The Economics of Disaster Mitigation in the Caribbean Quantifying the Benefits and Costs of Mitigating Natural Hazard Losses, 2005

inter-agency, 2018; Tropical Cyclone Josie and Tropical Cyclone Keni - Rapid Gender, Protection and Inclusion Analysis

International Risk Governance Council, 2005: White Paper on Risk Governance. GPFL International Risk Governance Center

(http://www.irgc.org/IMG/pdf/IRGC WP No.1 Risk Governance reprinted version.pdf/)

International Risk Governance Council, 2017: An introduction to the IRGC Risk Governance Framework, Revised Version. GPFL International Risk Governance Center

IPCC, 2007a: Climate Change 2007: Impacts, adaptation and vulnerability. Contribution of Working Group Ⅱ to the Fourth Assessment Report of the International Panel on Climate Change. M.L. Parry, et al. Cambridge University Press.

IPCC, 2007b: Climate Change 2007: Mitigation Contribution of Working Group Ⅲto the Fourth Assessment Report of the International Panel on Climate Change. M.L. Parry, et al. Cambridge University Press.

IPCC, 2012: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A special report on Working Group Ⅰ and Ⅱ of the International Panel on Climate Change. C. Field et al., Cambridge University Press.

Japan Meteorological Agency: Abnormal Climate, 2005

JICA, 2008: Natural Disaster Risk Reduction Programme Formation Survey in the Pacific, 2008

JICA, 2017: Review of the Natural Disaster Management Act for Fiji, 2017. M. Inoue

Mark Reid: Competency Framework for Emergency Management in Pacific Islands Countries and Territories, 2013

NIWA: Nadi River Flood Risk Assessment Report, April 2014

NDMO DISMAC: National Humanitarian Policy for Disaster Risk Management, 2017

Office of the Audit General of the Republic of Fiji: Climate Change Adaptation and Disaster Risk Reduction Strategies, Performance Audit Report, 2013

PFRPwD: Pacific Framework for the Rights with Disabilities 2016-2025 (http://www.pacificdisability.org/Resources/Disability-Frameworks.aspx)

Reducing the Risk: Reducing the Risk of Disasters and Climate Variability in the Pacific Islands, 2008

SFDRR: Sendai Framework for Disaster Risk Reduction 2015-2030. (http://www.unisdr.org/we/coordinate/sendai-framework)

SDGs: Sustainable Development Goals 2015-2030 (https://sustainabledevelopment.un.org/post2015/transformingourworld)

SOPAC Miscellaneous Report 678: Relationship between Natural Disasters and Poverty: A Fiji Case Study, 2009

SPC-GSD: Relationship between Natural Disasters and Poverty: A Fiji Case Study, June 2009

SOPs: Standard Operation Procedures, 2010

Strategic Planning Department: Concept Paper for Formulation of Fiji's Joint Strategy for Building Resilient Communities, 2015

The Republic of Fiji Constitution, 2013

The Republic of Fiji National Climate Change Policy, 2012

The Republic of Fiji Natural Disaster Management Act, 1998

The Republic of Fiji Natural Disaster Management Plan, 1995

Turnbull M. et al., 2013: Toward resilience: A guide to Disaster Risk Reduction and climate change adaptation, Practical Action, Publishing Ltd. UK (www.ecbproject.org/resources/library/34l)

UNISDR, 2014: Ten-Year Review on Progress Towards and Contributions Made by the Pacific Region to the Hyogo Framework for Action (HFA) from 2005-2015.

UNISDR Terminology, 2016: Report of the Open-ended intergovernmental expert working group on indicators and terminology relating to Disaster Risk Reduction, December 2016

United Nations, 1992: United Nations Framework Convention on Climate Change, 1992. (http://unfccc.int/resource/docs/convkp/conveng.pdf)

World Bank, 2008: Reducing the Risk of Disasters and Climate Variability in the Pacific, 2008

World Bank, 2015: Pacific Catastrophic Risk Assessment and Financing Initiative Summary Report, 2015

Wolf Wolfensberger, 1981: The Principle of Normalization in Human services, National Institute on Medical Retardation