Climate change adaptation and disaster risk reduction strategies

A PERFORMANCE AUDIT REPORT OF THE OFFICE OF THE AUDITOR GENERAL OF THE REPUBLIC OF FIJI

Climate change constitutes one of the greatest barriers to sustainable development. It puts Fiji's biodiversity and ecosystems, particularly marine and coastal, at risk. This has severe implications for Fiji's economic growth as the country relies heavily on its natural resources for economic development.

The effects of climate change are widespread and cross sectoral. Effective coordination of a multi-disciplinary approach and a well-established government position on issues and policies are required to address the impacts of climate change.

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Acronyms

ACP	annual corporate plan
ADB	Asian Development Bank
AR	annual report
CCA	climate change adaptation
CCU	Climate Change Unit
CBD	Convention on Biological Diversity
DRR	Disaster risk reduction
FMS	Fiji Meteorological Service
FRA	Fiji Roads Authority
IDI	International Development Initiative
INTOSAI	International Organisation of Supreme Audit Institutions
IWRM	Integrated Water Resource Management
KPIs	Key performance indicators
KRAs	Key result areas
LWRM	Land and Water Resources Management
MDG	millennium development goal(s)
MoA	Ministry of Agriculture
MPD	Ministry of Provincial Development
MRD	Mineral Resource Department
NCCAS	National Climate Change Adaptation Strategy
NCCCC	National Climate Change Coordination Committee
NCCCT	National Climate Change Country Team
NCCP	National Climate Change Policy
NDMO	National Disaster Management Office
NGOs	Non-Government Organisations
PASAI	Pacific Association of Supreme Audit Institutions
UNCCD	United Nations Convention to Combat Desertification
UNFCC	United Nations Framework on Climate Change

Glossary

Terms	**Definition**
Climate	The average weather observed over a period of time. Climate may be referred to as local, regional and sometimes as global average weather in a given time frame
Climate change	Occurs when the observed climate and variability patterns deviate from the average climate over a long period of time
Climate change mitigation	Involves countries committing to adopting measures to reduce their GHG emissions. Measures can include increased energy efficiency, promotion of sustainable forms of agriculture, development of new, clean technologies.
Climate change adaptation	Involves the development of policies, plans and practices implemented on the ground to assist natural and human systems to adjust to actual or expected climate change effects.
Disaster risk reduction	Involves the broad development and application of policies strategies and practices to minimise vulnerabilities and disaster risks throughout society through prevention, mitigation and preparedness.

1.0 EXECUTIVE SUMMARY

Background

The impact of climate change and natural disasters represent a major challenge to sustainable development, food security and poverty reduction in the Republic of Fiji. Fiji's people and its environment have been historically exposed to several risks such as cyclones and changes of rainfall patterns and temperature fluctuations caused by weather extremes and climate variability. Climate change has the potential to alter and increase such risks, through changing the frequency and/or intensity of weather extremes or climate variability phenomena and by adding new risks such as accelerated sea-level rise. The impacts of these climate events especially affect land-based resources sectors in Fiji, including forestry, agriculture, livestock and water management and biodiversity/natural ecosystems. These sectors provide the basis for Fiji's primary industry and significantly contribute to livelihoods and the general well-being of its people, and the country as a whole. More importantly, both experience and evidence reveal the high sensitivity of these sectors to weather extremes as well as climate variability and change, especially flooding. While Fiji's economy undergoes a constant development, it is necessary to ensure systematic as well as strategic approaches to adapt to current and anticipated climate impacts such as flooding to sustain a prosperous economy and society.

Coverage

The audit is conducted with the objective of assessing the effectiveness of the actions taken by key agency/agencies in implementing flood risk reduction strategies by examining the institutional arrangements for the implementation of flood risk reduction strategies; the implementation of flood risk reduction strategies; and monitoring and progress reporting arrangements.

The audit on "*Climate Change Adaptation and Disaster Risk Reduction Strategies"* looks into three main areas including the '*Institutional arrangements to support the implementation of risk reduction strategies'*, '*Implementation of flood risk reduction strategies',* and '*Accountability and reporting on progress of implementation of strategies process.'*

The audit focuses on the Climate Change Unit [CCU], the National Disaster Management Office [NDMO] and divisional Provincial Offices under the Ministry of Provincial Development, the Land Water Resource Management Unit [LWRM] under the Ministry of Agriculture [MoA], the Fiji Meteorological Services [FMS], and the Fiji Roads Authority [FRA]. The audit focused mainly on these entities as they play a major role in the implementation of flood risk reduction strategies. The audit also focused on activities undertaken by the Nadi Town Council and the Integrated Water Resource Management [IWRM] Project in Nadi, a locality prone to flooding.

Key findings

Institutional arrangement for the implementation of risk reduction strategies

- The National Climate Change Policy (NCCP) sets the platform for dialogue, collaboration among government agencies and stakeholders through organised planning, and implementation of national and local climate change programs.
- Some out-dated legislations, national plans and strategies vital for the effective implementation of disaster risk reduction strategies are still in their draft stages or yet to be endorsed, namely the Joint National Action Plan (JNAP, now referred to as Joint Platform for Climate Change and Disaster Risk Management) and the National Climate Change Adaptation Strategy (NCCAS), the out-dated Natural Disaster Management Act reviewed in 2005, etc.
- The Climate Change Unit needs to be adequately resourced.
- Relevant Committees under the Ministry of Provincial Development need to be re-activated

Implementation of flood risk reduction strategies

- Implementation of flood risk reduction strategies are decentralised to various agencies according to sectors and are implemented in isolation.
- Lack of consultation between stakeholders prior to developments
- Lack of planned approach by the NDMO

Monitoring and progress reporting arrangements

- There is no overall monitoring done by the Climate Change Unit on the progress of implementation of strategies identified in the Climate Change Policy.
- Progress of implementation of flood risk reduction strategies are monitored by the relevant agencies as required by their respective institutional reporting arrangements.

Overall conclusion

Flood risk reduction is considered by Government in post disaster recovery and rehabilitation activities. Implementing agencies have taken into consideration approaches that will reduce risk to flooding and have linked this when planning for the activities to be undertaken. For examples building of new bridges above flood levels, carrying out of irrigation and drainage support in agriculture and upper catchment flood mitigation activities under an integrated management of watersheds approach, etc.

Despite the lack of an all-encompassing coordination arrangement, implementing agencies through their activities are reducing the vulnerability and enhancing the resilience of Fiji's communities to the impacts of climate change and disasters, thus achieving objective 5 of the NCCP. The implementing agencies are effectively implementing flood reduction strategies as required under their various mandates and within the resources available. Strategies implemented have taken into consideration lessons learned from previous flooding incidences such as the climate proofing of road infrastructures damaged in the 2012 floods; construction of bridges at a higher altitude as in Ba; installation of early flood warning systems, dredging of rivers, construction of retention dams in the upper river catchment; and creating awareness in the communities regarding climate change issues.

There is no holistic monitoring by the Climate Change Unit [CCU] over the progress of implementation of projects undertaken by the various agencies. There is a lack of coordination through information sharing and the implementation of the NCCP. Implementing agencies however are conducting sufficient monitoring over the Projects they are implementing and reporting to their respective superiors accordingly.

General Recommendation

To ensure that key agencies implement flood risk reduction strategies effectively, audit recommends that respective agencies lobby for the endorsement of all their relevant plans, strategies, Acts, guidelines, etc., that are currently in draft form or reviewed. The Climate Change Unit [CCU] should conduct overall monitoring of the progress of implementation of strategies undertaken by the key agencies at timely intervals to establish achievements of the implementation of strategies and make informed decisions.

2.0 INTRODUCTION

This section of the report provides a brief overview of climate change and the reasons for conducting the audit.

2.1 Overview

2.1.1 Climate is defined as the average weather observed over a period of time. Climate may be referred to as local, regional and sometimes global average weather in a given time frame. Climate change occurs when the observed climate and variability patterns deviate from the average climate over a long period of time.

2.1.2 Climate change is expected to bring about an increase in the frequency and intensity of extreme events such as flooding, droughts and cyclones. Threats to marine ecosystems (such as coral bleaching, beach erosion, ocean acidification) and terrestrial ecosystems(such as soil erosion, salt water intrusions in low lying coastal areas, reduced soil fertility, and increased pests and disease are also anticipated. Whilst Fiji, as a very low emitter of greenhouse gases, is an insignificant contributor to climate change, the country is very vulnerable to its impacts.

2.1.3 Fiji is extremely vulnerable to climate variability and change as well as natural disasters. Internationally there is a common consensus among climate scientists and policy makers that disasters that are weather and climate related are likely to be exacerbated by climate change. Based on empiric measurements of the Fiji Meteorological Services and up-to-date climate projections of the Pacific Climate Change Science Project, the following climate change trends can be expected:

Table 2.1: Expected climate change trends

Climate factor	Climate trends		General climate impacts
Temperature	Extreme air temperatures and increased temperature	▶	Extreme heat
		▶	Drought
Rainfall	Changes in rainfall (amount and annual distribution)	▶	
		▶	Erosion
		▶	Floods
		▶	Heavy rainfall
Tropical cyclones	Decreasing number but higher intensity of cyclones & storm surges	▶	
		▶	Storm damage
Sea level	Sea level rise	▶	Salt water intrusion
		▶	Coastal erosion

Source: Government of Fiji – draft National Climate Change Adaptation Strategy for Land Based Resources (NCCAS) page 24

2.1.4 Fiji enjoys a tropical climate that allows for the production of a wide range of foods for both local consumption and exports and provides one of the basic attractions for the tourist industry, which to a large extent is attributed to natural resource activities (agriculture, forestry, fisheries and mining). Fiji's generally benign climate is, however, interposed by climatic extremes in the form of hurricanes, cyclones, floods and droughts. These extremes have serious economic, social and environmental consequences that require prudent macroeconomic management, proper land use planning and watershed management.

2.1.5 Serious environmental problems faced by Fiji are exacerbated by the ineffectiveness with which they are being treated. Particular problems include the degradation of land resources; climate changes, increasing risk of flooding and inundation to coastal settlements, unsustainable exploitation of marine resources, waste management problems, air and water pollution and the social ills and environmental impact of urbanization which undermines people's quality of life[1].

2.1.6 The impacts of these climate events will especially affect land-based resources sectors in Fiji, including forestry, agriculture, livestock and water management and biodiversity/natural ecosystems. These sectors provide the basis for Fiji's primary industry and significantly contribute to livelihoods and the general well-being of its people, and the country as a whole. Importantly, both experience and evidence reveal the high sensitivity of these sectors to weather extremes as well as climate variability and change. While Fiji's economy undergoes a constant development, it will be necessary to ensure systematic as well as strategic approaches to adapt to current and anticipated climate impacts to sustain a prosperous economy and society.

2.2 Reasons for the audit

2.2.1 Frequency and severity of extreme weather events [disasters] brought about by climate change impacts and natural climate variability significantly increase the vulnerability of most Pacific Island states thus requiring an increased ability of Government and communities in identifying and planning how to adapt to improve their capacity to respond to and reduce their vulnerability to these disasters.

2.2.2 For Fiji tropical cyclones are one of the most severe extreme events to affect the country, as experienced on numerous occasions over the past decade. On average, one or two cyclones affect some part of Fiji every season. The country has also experienced instances of major droughts associated with El-Niño events.

2.2.3 Floods are considered the most relevant climatic issue for Fiji given the occurrence of large-scale floodings in Fiji over the past 40 years which are mostly associated with prolonged heavy rainfall during the passage of a tropical cyclone, tropical depression and/or enhanced, slow moving convergence zone. Localised flash flooding during the wet season (November to April) is also quite common.

Sea floodings are also experienced during the passing of tropical cyclones close to the coast. Flooding of low lying coastal areas also occur due to deep depressions and/or intense high pressure systems some distance away from Fiji. On other occasions heavy swells coincide with king tides and cause flooding and damage to coastal areas.

2.2.4 The more recent floods of 2009 and 2012 have been witnessed to have had much adverse impacts on the country, with damages to infrastructure and livelihoods and their consequential rehabilitations having significant financial impacts to Government's finances.

Government through the relevant agencies have identified strategies to reduce risks to flood disasters, thus the conduct of this audit is to assess Government's response to overcome these calamities.

[1] Fiji National Assessment Report 2010

3.0 AUDIT OBJECTIVES, SCOPE & METHODOLOGY

This section of the report describes the objective and scope for this audit. It also discusses the methodology utilised to gather information for the audit.

3.1 Audit objectives and scope

3.1.1 The objective of the audit is to assess the effectiveness of actions taken by key agency/agencies in implementing flood risk reduction strategies by examining:

- the institutional arrangements for the implementation of flood risk reduction strategies;
- implementation of flood risk reduction strategies; and
- monitoring and progress reporting arrangements.

3.1.2 The audit focused mainly on the following entities that play a major role in the implementation of flood risk reduction strategies:

- ✓ Climate Change Unit [CCU],
- ✓ National Disaster Management Office [NDMO] under the Ministry of Provincial Development,
- ✓ Land Water Resource Management Unit [LWRM] under the Ministry of Agriculture [MoA],
- ✓ Fiji Meteorological Services [FMS], and
- ✓ Fiji Roads Authority [FRA].

3.1.3 Other related stakeholders consulted during the audit included the Commissioner's Office Western Division, the Ba Provincial Office, the Nadi Town Council and the Integrated Water Resource Management [IWRM] Project in Nadi to establish activities undertaken by them as they are located in the flood prone area of Nadi and Ba.

3.2 Audit methodology

3.2.1 The audit was conducted using the following evidence gathering techniques.

Table 3.1: Methodologies used to gather information

Audit Methods	Details
Documentary review	All the necessary documents relevant to the audit topic were reviewed by the audit team. Documents reviewed included Acts, Regulations, Policies, Cabinet decisions and its supporting Cabinet papers, organisational plans, National Strategic Development Plan, etc.

Interviews	Discussions were held with relevant personnel at CCU, National Disaster Management Office, Commissioner Western's Office; Ba Provincial Office; Fiji Meteorological Services; Fiji Roads Authority; Ministry of Agriculture; Lands and Water Resource Management Unit; Integrated Water Resources Management Project; and Nadi Town Council
Internet research	Information regarding NGOs and other government agencies involved with climate change activities and research were extracted from the internet.
Site visits	Site visits were conducted to verify implementation of strategies by implementing agencies.
Electronic confirmation	Information and reaffirmations sought and provided through emails and faxes

3.3 Technical assistance

3.3.1 The audit was undertaken with the technical assistance provided by the following organisations:

1. INTOSAI International Development Initiative [IDI]
2. Asian Development Bank [ADB]
3. Pacific Association of Supreme Audit Institutions [PASAI]
4. Victoria Auditor General's Office [VAGO]

4.0 INSTITUTIONAL ARRANGEMENTS FOR THE IMPLEMENTATION OF CLIMATE CHANGE POLICY IN ADDRESSING FLOOD RISK REDUCTION

This section of the report assesses the institutional arrangements in place for the implementation of the Climate Change Policy in addressing flood risks brought about by disasters and their proposed mitigating strategies. Such arrangements should identify the relevant stakeholders and their mandates for implementing strategies, their roles and responsibilities, and coordination arrangements between stakeholders.

4.1 National Policy and Strategy for Climate Change

4.1.1 As a signatory to various international agreements and conventions such as UNFCC, UNCCD, CBD, and the Kyoto Protocol, Fiji is obligated to develop appropriate national responses[2].

4.1.2 Policies and strategies developed supporting Government's stance on climate change include the Fiji National Climate Change Policy [NCCP] and the National Climate Change Adaptation Strategy (NCCAS), and which are described below.

4.1.1 Fiji National Climate Change Policy

4.1.1.1 In 2007 Cabinet endorsed Fiji's National Climate Change Policy Framework which defined the position of Government and other stakeholders on issues of climate change, climate variability and sea level rise, and also defined the various responsibilities of each stakeholder in the short and long term[3].

The framework was reviewed in 2011 to reflect the current and emerging climate change issues at the local, national and international level resulting in the development of the National Climate Change Policy (NCCP).

4.1.1.2 Cabinet approved the National Climate Change Policy for Fiji in January 2012[4]. The NCCP was developed to guide efforts in following an effective and integrated approach to addressing climate change issues in Fiji, and to support the achievement of relevant key performance indicators identified in the Fiji Roadmap for Democracy and Sustainable Socio-Economic Development (RDSSED) 2009-2014[5]. The RDSSED defines the implementation framework for the People's charter for change, peace and progress which serves as the umbrella framework for national development in Fiji.

[2] National Climate Change Policy section 5 Policy Goals Page 19
[3] National Climate Change Policy Foreword
[4] Cabinet Decision 14 of 19 January 2012
[5] National Climate Change Policy Section 5 Page 19

4.1.1.3 The National Climate Change Policy endorsed by Cabinet in 2012 serves as an implementing tool for many of the strategies outlined in the charter linking to climate change activities such as:

- ✓ environmental protection, sustainable management and utilization of natural resources;
- ✓ strengthening institutional capacities for environmental management; and
- ✓ strengthening food security

4.1.1.4 The National Climate Change Policy was developed by the Department of Environment under its Climate Change Program and later by the CCU upon its transfer to the Ministry of Foreign Affairs. The policy was developed after widespread consultation with all stakeholders from all relevant government sectors, non-government organisations, development partners, and community based organisations. Stakeholders included in the Policy and represented in the consultation process are listed in Appendix 1 to this report. The consultation process was steered by the National Climate Change Policy Taskforce, a sub group of the National Climate Change Country Team.

4.1.1.5 The National Climate Change Policy provides guidelines for sectors to ensure the current and expected impacts of climate change are considered in their planning and implementation programmes. Disaster risk reduction strategies are provided under Objective 5 of the NCCP.

The implementation of the NCCP is supported by the draft National Climate Change Adaptation Strategy (NCCAS).

4.1.2 National Climate Change Adaptation Strategy

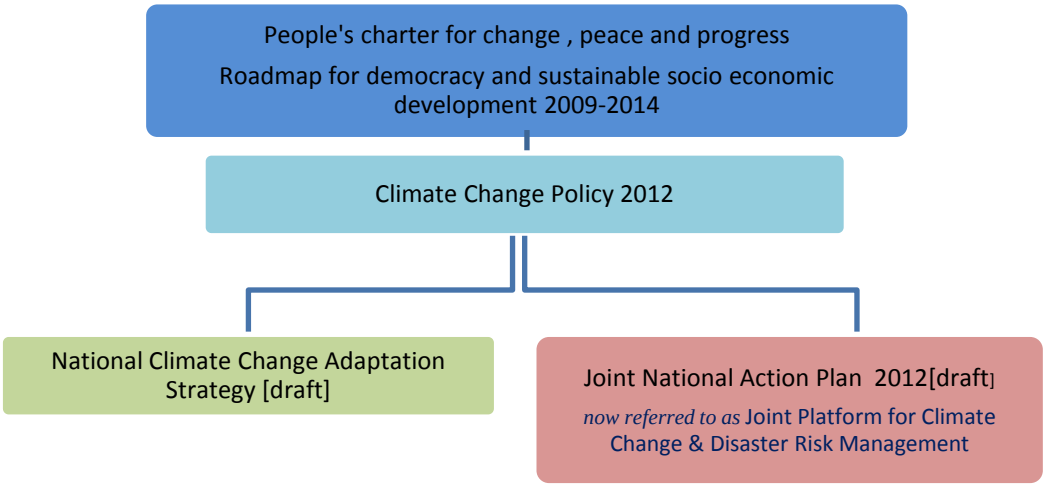
4.1.2.1 Having endorsed national plans and strategies provides direction and defines responsibilities of agencies that encourages and empowers agencies in fulfilling their roles.

4.1.2.2 The draft National Climate Change Adaptation Strategy (NCCAS) lays out an approach to identify and implement efficient and effective activities to manage the existing and anticipated consequences of climate change for the land-based resources sectors in Fiji, namely, agriculture, biodiversity, forestry, land and water. These sectors play dominant and essential roles in the economy of Fiji and contribute to livelihoods and the general well-being of the people and the country as a whole.

4.1.2.3 The draft NCCAS is aligned with and builds on existing strategies, policies and action plans. The adaptation actions identified in the draft NCCAS are directly linked to the policy objectives and strategies as defined in the National Climate Change Policy. This interlinkage between the two documents allows the draft NCCAS to directly support the implementation of the NCCP. The draft NCCAS is thus the guiding document and foundation for all upcoming initiatives, programs and projects implemented in Fiji in order to adapt its land based resource sectors to the current and future consequences of climate change and natural disasters.

Figure 4.1 below illustrates the link between the Policies, strategies and plans relating to climate change to the People's charter for change, peace and progress.

Figure 4.1: Linkage between People's Charter for change, peace and progress and Climate change policy, strategy and plan



4.1.2.4 Without endorsed plans and strategies in place implementing agencies are less inclined to or obligated to implement the policies.

4.2 Disaster Risk Reduction Framework

4.2.1 To adequately respond to and manage disasters there must be a comprehensive approach to the management of risks associated with them[6].

4.2.2 Disaster Risk Management as administered by the Ministry of Provincial Development is provided for under the Natural Disaster Management Act [NDMA] 1998 and the National Disaster Management Plan 1995.

Later strategies developed by Government that endeavour to incorporate issues pertaining to climate change include the CHARM tool in 2002 and the National Disaster Risk Management Arrangements (NDRMA) in 2006.

4.2.1 Natural Disaster Management Act

4.2.1.1 The Natural Disaster Management Act (NDM Act) of 1998 makes provision for performance by government and relevant agencies of their functions and duties in relation to natural disaster management and activities and related matters[7].

4.2.1.2 The NDMO derives its authority from the NDM Act 1998 which sets out the framework for handling all aspects of disaster management for the "before", "during" and "after" phases.

4.2.1.3 From discussions with the OIC at NDMO, it was confirmed that the NDM Act 1998 is quite outdated and may not be relevant in view of the changes in disaster management worldwide. Although the NDM Act was reviewed and the draft legislation on disaster risk management submitted to the Solicitor General's Office for vetting in 2006, it did not progress further.

[6] Fiji NDRMA 2006 Foreword Page 3
[7] Natural Disaster Management Act No. 21 of 1998

In following up with the status of vetting in 2013, the SG's Office advised NDMO that due to the time lapse since the review in 2006, the draft legislation needed to be reviewed again. The National Disaster Management Council (NDMC) in 2013 has endorsed the revision of the NDM Act but is awaiting Cabinet approval before undertaking the review.

4.2.1.4 Furthermore it was also disclosed that the current legislation does not clearly identify an appropriate national platform or overarching body with policy oversight responsibility on disaster risk management and climate change.

4.2.1.5 A review of the legislation will incorporate new initiatives that have developed over the years that are linked to climate change and disaster management and will also enhance coordination amongst stakeholders which may improve efficiency and transparency in disaster management.

4.2.2 National Disaster Risk Management Arrangements

4.2.2.1 The review of the NDM Act 1998 and the Fiji National Disaster Management Plan of 1995 (NDMP) also prompted the development of the National Disaster Risk Management Arrangements [NDRMA] which was endorsed by Cabinet in 2006. This was an attempt to try and synchronise efforts to respond to disasters with those directed at mitigating against expected risks.

4.2.2.2 The NDRMA sets out the arrangements for disaster risk reduction and disaster management in Fiji and ushers in a new focus for the national disaster machinery in terms of assigning overall responsibility for the management of both natural and human caused disasters. The NDRMA replaces the Fiji National Disaster Management Plan 1995[8]. It goes beyond the NDMP by providing a mechanism for an all hazards approach to disaster management, that is, it includes Disaster risk aspects which are more focused on disaster management. It also reiterates the requirement amongst all government agencies for the incorporation of comprehensive hazard and disaster risk management practices into their respective development planning and budgeting processes.

4.2.2.3 The NDMO is working with the Ministries to include DRR in their operational plans and with Climate Change Office to establish JNAP.

4.2.2.4 The effective implementation of the NDRMA is dependent on the enactment of the draft legislation.

4.2.3 Joint National Action Plan [or Joint Platform for CC and DRM]

4.2.3.1 The Ministry of Provincial Development through the National Disaster Management Office is authorised to formulate a National Action Plan based on the Regional Framework.

4.2.3.2 It was confirmed that Fiji is in the process of developing a Joint National Action Plan (JNAP) for climate change adaptation (CCA) and disaster risk management (DRM).

4.2.3.3 The endorsed JNAP will strengthen implementation of the Climate Change Policy as it assigns responsibilities to agencies which empower agencies in fulfilling their roles.

[8] Fiji NDRMA 2006 section 1.0 Para 1.1

4.2.4 Comprehensive Hazard and Risk Management (CHARM) tool

4.2.4.1 The NDMO and other implementing agencies such as CCU, Ministry of Primary Industries and the Fiji Meteorological Services should develop and make accessible hazard maps of coastal, riverine, urban and inland areas in Fiji, using the comprehensive hazard assessment and risk management (CHARM) tool to guide all development planning[9].

The NDMO together with the implementing agencies such as Ministry of Primary Industries and Fiji Meteorological Services should develop adaptation technologies that take traditional knowledge into account and are culturally acceptable[10].

4.2.4.2 In 2002 Cabinet proposed the development of the CHARM approach for Fiji and agreed that Fiji take a proactive and strategic approach in championing CHARM in the region and also in the international arena. The CHARM is an approach to disaster reduction and risk management with the primary objective of strengthening community resilience and integrating risk management practices into national development planning. It is a development planning approach within the context of an integrated national planning process. It is a tool designed to provide an easy and structured decision making process that more clearly defines the types of risks, to which communities are most vulnerable to. These include risks from natural, technological, human induced, biological and environmental hazards[11].

4.2.4.3 CHARM was proposed to be developed in partnership with SOPAC under the regional disaster management program and to be funded by SOPAC with minimal contribution from the Fiji Government. However it was confirmed by the OIC NDMO that there is still no platform to drive the systematic application of the CHARM approach and that Fiji's planned technical assistance from SOPAC was still yet to eventuate.

4.2.4.4 Delays in the implementation of CHARM within the required timelines may result in benefits foregone.

4.3 Key implementing agencies

4.3.1 The CCU should have a prioritised and planned approach to delivering the National Climate Change Policy and coordinating climate change programmes and projects in Fiji, and should be implementing these[12].

4.3.2 The NCCP provides for the policy implementation framework. It describes the policy strategies and identifies the agencies responsible for their implementation. Most of the strategies outlined in the policy cut across sectors and require the contribution of a number of agencies and organisations for effective implementation. Attached as Appendix 2 are the key implementing agencies identified in the NCCP responsible for the implementation and monitoring of flood risk reduction strategies, with their relevant mandates.

A lead agency and implementing agencies are identified for each strategy. The lead agency is responsible for initiating and coordinating programs and initiatives in line with the strategy whilst the implementing agencies, in collaboration with the lead agency implements projects

[9] National Climate Change Policy: Policy Implementation framework Objective 5 Strategy 6
[10] National Climate Change Policy: Policy Implementation Framework Objective 5 Strategy 4
[11] Cabinet Memorandum CP (02) of 14/2/2002
[12] National Climate Change Policy section 7 pages 21-25

and initiatives to support the achievement of the strategy. Refer Table 4.1 below for strategies outlined and responsible entities.

Table 4.1: Strategies and key responsible agencies

Strategy	Key responsible agency	Implementing agency	Timeframe
✓ Integrate related disaster risk reduction and climate change adaptation strategies and actions into national and sectoral planning to streamline responses	Ministry of Strategic Planning, National Development & Statistics	CCU NDMO Line Ministries SOPAC	2012-2014
✓ Include vulnerability assessment and climate change impact projections into resource management planning such as integrated coastal and watershed management plans	CCU	Department of Environment Line ministries	2012-2014
✓ Support the ecosystem based approach throughout Fiji, recognizing that ecosystem services such as food security, natural hazard mitigation, and physical coastal buffer zones increase resilience		Department of Environment (DoE) Ministry of Primary Industries Fiji Met Services(FMS) NGOs	2012-2016
✓ Use appropriate consultation mechanisms for the participation of all members of the community in the planning, management and implementation of adaptation measures		Ministry of Provincial Development Department of Works (DoW) Ministry of Agriculture (MoA) NDMO; FMS	2012-2016
✓ Mobilise resources and all sectors to support the implementation of relevant national adaptation strategies and plans such as the National Climate Change Adaptation Strategy (NCCAS), the planned Joint National Action Plan (JNAP) for CCA and DRM and the National Disaster Risk Management Plan (NDRMP)		As above	2012-2016
✓ Develop adaptation technologies that take traditional knowledge into account and are culturally acceptable	National Disaster Management Office	Department of Lands (DoL) Department of Town and Country Planning (DTPC) DoE and NGOs	2012-2016
✓ Develop and make accessible hazard maps of coastal, riverine, urban and inland areas in Fiji, using the comprehensive hazard assessment and risk management (CHARM) tool to guide all development planning		CCU; DoE; MPI; NDMO;FMS; NGOs	2012-2014
✓ Improve disaster response, capacity and access to public health facilities, emergency services, communication services, and evacuation centres		MoA; NDMO; FMS; Ministry of Information	2012-2016
✓ Strengthen early warning systems to ensure	Fiji Meteorological	SOPAC; FNU; USP;	2012-2013

effective and timely communication to the public with particular attention paid to isolated, hazard prone and disadvantaged areas.	Services	SPREP; IUCN; Forum Secretariat; NGOs	

4.3.3 There is no formal arrangement amongst stakeholders to coordinate their efforts. Their actions are driven by the policies or objectives of the entities they represent. The lack of coordination amongst stakeholders has adversely impacted outcomes of certain flood risk reduction projects undertaken, such as the construction of the Nawaka 1 dam which was washed away during one rainy period. However despite the lack of a coordinated arrangement, individual efforts and differing goals, implementation of most risk reduction strategies have progressed successfully as evidenced by the minimal adverse impacts and casualties experienced in the recent spate of bad weather in December 2012.

4.3.4 Having formal arrangements amongst stakeholders defines responsibilities, eases implementation of work required and promotes accountability.

4.4 Sustainable financing

4.4.1 When implementing projects and initiatives to support the achievement of the strategy, implementing agencies should ensure that there is adequate and sustainable financing for climate change and disaster risk and flood risk reduction efforts, and that these funds are used appropriately.

4.4.2 The channelling of funds through a defined agency promotes accountability, instils confidence in donor agencies, and encourages their continued support. Accountability of funds received and deployed will provide Government with information on the magnitude of climate change adaptation related activities funded and identify priority areas to be funded.

4.4.3 Awareness should be created by responsible agencies of the availability of donor funding to assist implementing agencies in implementing climate change adaptation activities not budgeted for, or identifying and planning for proposed climate change adaptation activities.

4.4.4 The CCU as lead agency will mobilise resources and all sectors to support the implementation of relevant national adaptation strategies and plans, such as the National Climate Change Adaptation Strategy, the planned Joint National Action Plan for CCA and DRM and the National Disaster Management plan[13].

4.4.5 Some NGOs include DRR funding considerations in their budgets. Fiji has also been able to secure global climate funds such as Reducing Emissions from Deforestation and Forest Degradation in developing countries program (REDD) and the Global Environment Facility (GEF) and has received assistance from development partners in managing these funds. Listed in the table 4.2 below are some examples of funding which are available at the international, regional and national levels.

[13] National Climate Change Policy : Policy Implementation Framework Objective 5 Strategy 11

Table 4.2: Examples of funding from donor agencies

Name of Fund	Total funding $	Purpose	Type
Global Environment Facility (GEF)	US$1billion over 2007-2010	Mitigation and adaptation	multilateral
UN collaborative program on reduced emissions from deforestation and forest degradation	US$100milllion	mitigation	multilateral

However the government is unable to track all funds received for climate change purpose from overseas development assistance and from within the country because some funding is provided directly from donor organisations to the implementing agencies or the communities assisted. This indicates that information on funds received for climate change related activities is not yet wholly captured through the national financial systems.

4.4.6 Climate change funding disbursed to the Ministry of Foreign Affairs and International Cooperation is facilitated through the Ministry of Finance.

The Overseas Development Aid (ODA) unit under the Ministry of Finance is responsible for the coordination and administration of all aid funding including climate change funding received by Government. International funding is received by the Reserve Bank of Fiji (RBF) and transferred to the accounts section of the Ministry of Foreign Affairs and International Cooperation (MFAIC).

The project coordinator or the Director for CCU manages the fund and provides advice to the accounts section for any disbursement. The accounts section (MFAIC) monitors the project funds and advises the CCU on the funds available. All acquittals of funding are carried out by the CCU for the implementation of the project funds.

4.4.7 From discussions it was established that stakeholders were unaware of the availability of donor funding that would facilitate implementation of climate change adaptation related activities.

4.4.8 The audit found that the CCU has developed a draft Climate Change Finance guideline to provide clear instructions on the current financial process for climate change projects that are implemented by the CCU. Furthermore, there is no dedicated budget for risk reduction or prevention for implementing agencies. Disaster risk reduction activities are included in activities funded under each government agency's capital budget.

Disaster risk and flood reduction strategies are funded by Ministries and Departments through their annual budget appropriations. For example the Lands Water & Resource Management Unit has made provisions in their budget for the past 3 years 2011 to 2013 for land drainage and flood protection for $6million, $7million and $6million respectively. The LWRM has been able to carry out its land drainage and flood protection strategies within its Budget.

4.4.9 In 2013 separate mitigation funds were provided for in the NDMO and FMS Budgets as listed in Table 4.3 below.

Table.4.3: Budgeted mitigation funds

Agency	2013	Purpose
National Disaster Management Office	1,000,000	Mitigation projects such as building of seawalls in Bau island and relocation of villagers from Vunidogoloa village in Natewa Bay
Fiji Meteorology Services Hydrology Unit	450,000	Mitigation projects

Entities prioritise and plan for the strategies they will undertake in the coming year and have identified budget to implement the strategies. As at the date of audit in June 2013 the NDMO has utilized $750,000 of its budget building seawalls for Bau Island. The remaining funds are for relocating Vunidogoloa Village in Vanua Levu to a new village site.

As at the date of audit in June 2013, the Hydrology Unit has installed water meter gauges at the Sigatoka River and Labasa.

4.4.10 Fund for the compilation of a Joint National Action Plan is available with the SOPAC.

4.5 Resourcing of CCU and NDMO

4.5.1 The establishment and or strengthening of existing decision making processes and organisational arrangements will ensure timely and effective disaster risk reduction and disaster management outcomes[14].

4.5.2 As at the date of audit, the CCU has only one permanent staff. The activities of the CCU are also funded by development partners and work is facilitated by 4 project officers funded from their various donors.

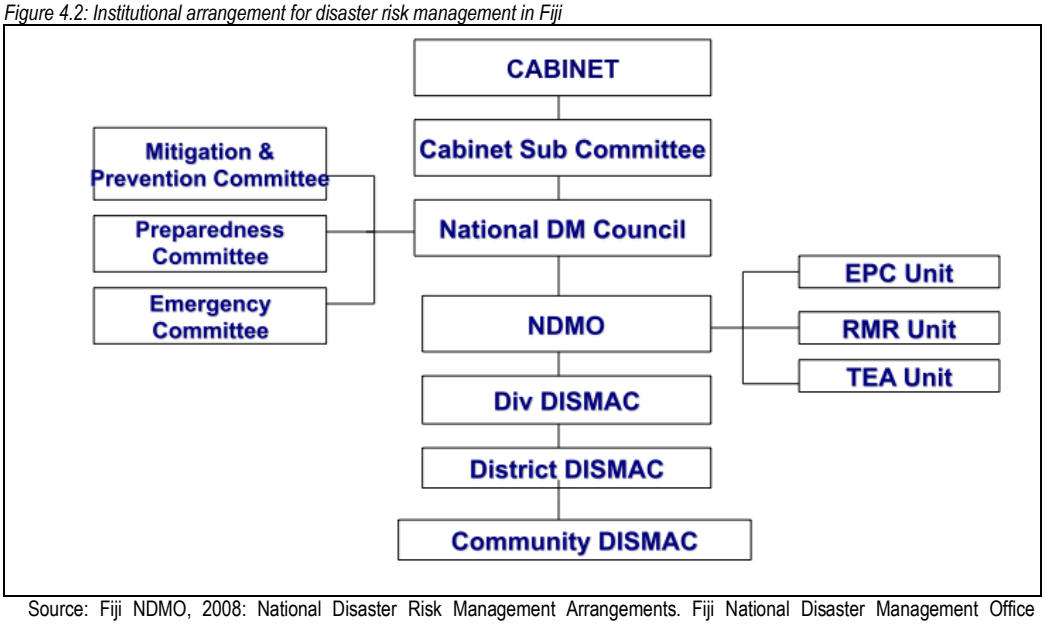
4.5.3 The National Disaster Management Office (NDMO) was established to serve the National Disaster Management Council (NDMC) and also to promote disaster risk reduction through all government sectors.

The NDMC is responsible for coordinating the National Disaster Management Plan 1995 and the Natural Disaster Management Act 1998. The NDMC is facilitated by 3 committees namely, the Mitigation Committee, the Prevention Committee together with Preparedness Committee. The 3 sub committees are responsible for the development, implementation and monitoring of policies for disaster mitigation and prevention, and disaster preparedness activities and programmes. It was confirmed that these committees have not been active and need to be revived and equipped with people that are skilled and experienced in the area of flooding.

Refer to Figure 4.2 below for the institutional arrangements of all disaster risk reduction initiatives within government and wider community.

[14] :Regional Framework for Action objective 5 Strategy 2

Figure 4.2: Institutional arrangement for disaster risk management in Fiji



Source: Fiji NDMO, 2008: National Disaster Risk Management Arrangements. Fiji National Disaster Management Office (NDMO) presentation to Agriculture, October, 2008

The NDMO currently employs twelve staff without any dedicated vehicle. The current organisational structure does not provide for NDMO offices at the divisional and district level to coordinate their required flooding risk reduction programs and activities.

The NDMO facilitates and supports the NDMC through its 3 units namely, the Policy, Research and Risk Management unit; the Training, Education & Awareness unit; and the Emergency, Planning and Coordination unit. Listed in Table 4.4 are the activities that each unit under NDMO carries out that incorporates the implementation of some flood risk reduction activities.

Table 4.4: Activities of the three units under the NDMO

Unit	outputs
Policy, Research and Risk Management	Policy development - Formulation and development of disaster risk reduction policies for Fiji.
	Research and Development - The conduct of disaster risk reduction research by specialised disaster management partners and implementation of programs formulated from the research activities
	Risk Management –The identification and analysis of risk factor that affects communities with the formulation of risk reduction programs aimed at reducing risks at manageable level
Training, Education & Awareness	The formulation development and conduct of disaster risk reduction training at the national ,divisional, district level and community level
	The formulation, development and conduct of formal training of disaster risk at the national, divisional, district level and community level according to the needs and gaps at various levels.
Emergency, Planning and coordination	N/A This is mostly focused on disaster management.

The NDMO resources are more focused on the facilitation of relief and rehabilitation program under the EPC Unit and TEA Unit with less focus directed to the PRRM Unit which addresses most of the flooding risk reduction activities under the disaster risk program.

The audit noted that although the institutional arrangements for disaster risk reduction initiatives has been identified under the national disaster management framework, there is no overarching national platform that addresses coordination of flood risk reduction strategies at a national level.

4.5.4 Well-resourced units will ensure the effective implementation of the flood disaster risk reduction strategies.

RECOMMENDATIONS

National policy and strategy for climate change

The CCU should pursue the endorsement of the NCCAS with the relevant stakeholders.

Disaster Risk Reduction framework

The NDMO should:

- through its line minister seek Cabinet approval for the urgent review of the Act.
- pursue the endorsement of the JNAP with the relevant stakeholders.

Key implementing agencies

The CCU should have formal arrangements between stakeholders and advise implementing agencies of their commitment/roles as per the Policy.

Sustainable financing

The CCU should:

- create awareness on the availability of funding for implementation of strategies and reiterate the importance of channeling funds received from donor agencies through the government's systems;
- pursue the endorsement of the draft guidelines on Financing with the relevant stakeholders

Resourcing of CCU and NDMO

- The CCU should be sufficiently resourced to enable it to carry out its roles and responsibilities effectively
- The Ministry of Provincial Development should:
  - be sufficiently resourced to enable it to carry out its roles and responsibilities effectively;
  - ensure that the three sub-committees to the NDM Council are revived.

Management Comments

Climate Change Unit (CCU)

The endorsement of the NCCAS is a KPI of the CCU to be achieved in the first quarter of 2014. As for sustainable financing, a Financing Guideline has been developed with the purpose to provide clear instructions on the current financial process and also reflects the existing system and process of managing climate change funding through the Ministry of Finance.

The CCU at the moment consists mostly of project officers, therefore recommendation supported for the CCU to be sufficiently resourced to effectively coordinate and implement the National Climate Change Policy 2012.

Ministry of Provincial Development and National Disaster Management Office

Disaster Risk Reduction Framework

Yes NDMO is working on acquiring Cabinet approval and completion of the review of the Act. It is included in NDMO 2014 business plan and has been approved and endorsed by the Disaster Management Council.

With regards to the implementation of the JNAP, NDMO have had meetings with UNISDR officials and will work towards setting up a national platform for Disaster Risk Reduction and Disaster Management over the course of this year 2014. This is envisioned to amalgamate with the climate change platform which is already in place, in the future, thus creating the JNAP for Fiji.

Resourcing of CCU and NDMO

- *NDMO concurs with recommendations that the NDMO should be sufficiently resourced in all aspects because of the work undertaken by NDMO. It should be highlighted that NDMO is structured, manned and equipped for coordination of immediate relief response only should a disaster occur. Issues of Disaster Risk Reduction/Mitigation works, training both members of the civil service and the community at large, carrying out impact assessments, managing government response to disaster and coordinating and managing rehabilitation and reconstruction work, is part and parcel of NDMO task therefore this National Office (NDMO) should be restructured/reorganized and equipped to effectively and efficiently carry out its required responsibilities.*

- *NDMO will work on reviving the three sub-committees to the NDM Council*

5.0 IMPLEMENTATION OF FLOOD RISK REDUCTION STRATEGIES

This area seeks to determine whether the framework has been implemented, implementation is effectively coordinated across the key agencies, roles and responsibilities of each key agency are clearly defined, and that there are sufficient human and financial resources available to ensure effective implementation.

5.1 Climate Change Unit

5.1.1 Identification of effective adaptation measures by CCU

5.1.1.1 The Policy Implementation Framework requires the CCU and implementing agencies to support the ecosystem based approach throughout Fiji, recognizing that ecosystem services such as food security, natural hazard mitigation and physical coastal buffer zones increase resilience[15] and undertake national research to identify effective adaptation measures to support sector specific adaptation and disaster risk reduction responses. [16].

5.1.1.2 Climate change adaptation measures identified in the NCCP are synonymous to disaster risk reduction strategies. The adaptation strategies include some flooding reduction strategies where the leading implementing agencies for the flood risk reduction activities are identified.

Although the NCCP indicates the time duration for implementation of the strategies and the implementing agency, it does not specify the activities and the milestone to be achieved by implementing agencies at a specified timeline such that the strategy is successfully implemented. Refer to table 5.1 below for extract of strategies, timeframe, lead agency and implementing agency outlined in the NCCP.

Table 5.1: Examples of flooding reduction strategies

Strategies- Objective 5: Adaptation	Timeframe	Lead Agency	Implementing agency
Integrate related disaster risk and climate change adaptation strategies and actions into national and sectoral planning to streamlining responses.	2012- 2014	Ministry of Strategic Planning, National Development and Statistics	CCU , NDMO, line ministries and SOPAC
Develop and make accessible hazard of coastal and riverine, urban and inland areas in Fiji using CHARM tool to guide all development planning.	2012- 2014	NDMO	CCU,DOE, Ministry of Primary Industries, NDMO, MET,NGO's
Incorporate climate change impact projections into resource planning such as integrated coastal and watershed management.	2012- 2016	NDMO	CCU,DOE, Ministry of Primary Industries ,NDMO, MET,NGO's

5.1.1.3 Failure to indicate activities and milestones in the NCCP instils a lack of urgency in the timely implementation of strategies.

[15] National Climate change Policy: Policy Implementation Framework Objective 5 Strategy 5
[16] National Climate change Policy: Policy Implementation Framework Objective 5 Strategy 14

5.1.2 Vulnerability Assessments

5.1.2.1 The CCU together with line ministries as implementing agencies are to include climate change vulnerability assessments and climate change impact projections into resource management planning, such as integrated coastal and watershed management plans[17]. They are to use appropriate consultation mechanism for the participation of all members of the community in the planning, management and implementation of adaptation measures. [18].

5.1.2.2 The CCU collects and disseminates information on communities' vulnerabilities. The CCU has also developed and piloted a vulnerability and adaptation tool in collaboration with the Ministry of i-Taukei Affairs which is being used for preliminary assessments in the communities. The vulnerability assessment tool is yet to be endorsed awaiting consultation with all relevant stakeholders.

5.1.2.3 Climate change assessment is carried out to identify the vulnerability of the area based on the impact of climate change. Climate change projection is specific on projections of future climate change adaptation strategies and contributing to the sustainable development. The climate change projections on any adaptation plan will reduce the risks associated with it therefore the coastal and watershed management plan developed should include Fiji's future climate projections.

5.1.2.4 In addition to the above, audit also noted that there are no criteria in place to prioritise villages to be relocated. Vulnerability assessments are conducted only upon request for confirmation of relocation.

Two villages identified for relocation upon request included Vunidogoloa village in Vanua Levu and Narikoso village in Kadavu. The reason for request of relocation was due to constant rising sea level brought about by climate change. Vulnerability assessments were carried out by the CCU to establish the level of exposure and vulnerability faced by these villages from coastal flooding. Through the Unit's assessments, Government provides funding for relocation. Illustrated in Figure 5.1 below are the two villages identified for relocation.

Figure 5.1: Two villages identified for relocation

Vunidogoloa village in Vanua Levu relocated from a seaside village to higher land because of sea level rise, erosion and intensifying floods

[17] National Climate Change Policy: Policy Implementation Framework Objective 5 Strategy 2
[18] National Climate Change Policy: Policy Implementation Framework Objective 5 Strategy 10


Narikoso village in Kadavu, inundated with sea water during high tide and during heavy rains, relocated 100meters inland

5.1.2.5 The CCU also confirmed that climate change impact projections for Fiji was developed through the Pacific Climate Change Science Program and Adaptation Plan funded through the Australian Government in collaboration with the Fiji Meteorological Services and the CCU, resulting in the publication of two volumes of Country Reports.

5.1.2.6 The CCU has currently developed a Draft Relocation Guideline to assist it in facilitating relocation of communities.

5.1.2.7 The lack of criteria on which assessment can be compared against may impair prioritization of villages to be assisted and may result in misuse of climate change relocation funds budgeted by the government or provided by donor agencies.

5.1.2.8 It was also confirmed that the Coastal Management Plan is currently being handled by the Department of Environment and is based on the significant impacts of climate change in the coastal communities. The Commissioners' Office under the Ministry of Provincial Development is also earmarked to lead the process of all watershed management plans in Fiji. The University of the South Pacific (FORNET Project) has also started with the drafting of the upper watershed management for the Ba Province. The CCU also anticipates GEF 6 funding to include a few major watersheds in Fiji. All plans (integrated coastal management plan and water management plan) will be based on climate change projections for Fiji.

5.2 National Disaster Management Office

5.2.1 Approach to delivering disaster risk reduction activities

5.2.1.1 The NDMO should have a prioritised and planned approach to delivering Fiji's disaster risk reduction activities under the NDRMA and coordinating the agencies involved and should ensure that the approach are successfully implemented.

5.2.1.2 The prioritised and planned approach to delivering Fiji's disaster risk reduction activities in NDMO is currently determined from complaints that are raised from the Mata ni Tikina, District Officers or Provincial Administrators to the Divisional Commissioners. The most vulnerable areas that have been identified by the divisional commissioners are then discussed during the Ministry's quarterly meeting.

5.2.1.3 In 2013 Government allocated a budget of $1,000,000 for mitigation activities to be undertaken by the NDMO. The audit noted that NDMO does not have a planned approach in prioritising projects to be undertaken beforehand. Mitigation funds were utilized for building sea walls on Bau Island and relocating Vunidogoloa village in Natewa Bay in Vanualevu.

5.2.1.4 The lack of a planned approach in implementing project may result in the mitigation funds being spent on projects that are less vulnerable to climate change compared to the rest.

5.2.2 Implementation of flood early warning system

5.2.2.1 The NDMO is to conduct upgrading of flood early warning system. As part of the United Nation's Millennium Development Goal (MDG) the Japan International Corporation Agency in conjunction with the National Disaster Management Office of the Ministry of Provincial Development is mandated to establish the strengthening of Community based Disaster Risk Management Programmes in Fiji[19].

5.2.2.2 Assistance was provided by the Japanese government through the Japan International Corporation Agency [JICA] for the installation of project along the Ba river banks. The JICA and the NDMO have established the strengthening of community based disaster risk management programmes in Fiji. The approach of the project was to develop an integrated development structure at the divisional, district, and community levels on building national resilience to disasters in line with pillar 7 of the strategic framework for change.

The flood early warning system was selected for the Ba district due to its vulnerability to natural disasters such as floods, cyclones, earthquakes, landslides, droughts, etc. It was considered that disaster information was not promptly or accurately conveyed to the rural communities in specific areas along the Ba River by the Fiji Met Services and the Hydrology Unit under the Water Authority of Fiji at the time due to the insufficiency of telecommunication links within the rural areas. Transmitting disaster alerts and warnings to the rural communities by the National Disaster Management Office and collaboration between each agency were sometimes inadequate during the approach of disasters. Due to the lack of evacuation routes, evacuation centres and poor means of transmitting warnings, the rural communities were very vulnerable.

5.2.2.3 The audit observed that NDMO in coordination with JICA has installed flood early warning systems in two flood prone villages along the Ba River namely Nasarawaqa and Nasolo Villages and which are maintained by the villagers. These community based early warning systems provide a mechanism that enables villagers to be forewarned of rising flood water levels and to evacuate their homes should the need arise.

River gauges were installed in the Ba River alongside the villages and are connected to alarm systems located in the homes of trained persons in the community. Alarm system is triggered once water levels in the Ba River reach critical levels. The assigned person will set off the siren to warn the villagers of the rising water levels and hustle them to evacuate their homes for safety.

Another community based flood early warning device installed in the villages is the simplified rain gauges. The alarm is triggered once water levels in the rain gauge reach a certain level and will prompt the assigned personnel to raise the siren to warn the villagers of anticipated

[19] Cabinet Paper (10) of 15th November 2010

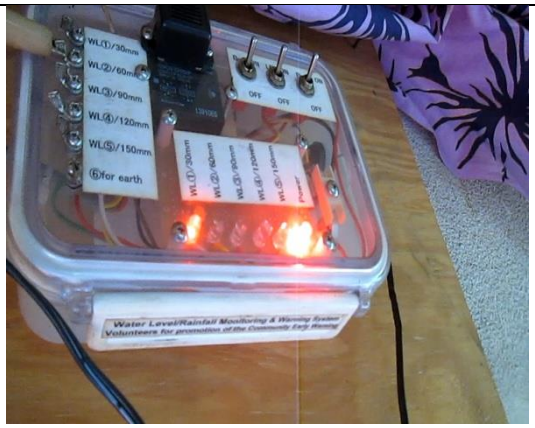
flooding. Refer to Figure 5.2 below for community based early warning system installed in the villages.

Figure 5.2: Community based early warning system installed

River gauge installed in the Ba river alongside Nasarawaqa village. Once water reaches a critical level it sets off the alarm.

The trained community personnel will raise the siren installed outside his home once the alarm is triggered off

Simplified rain gauge installed in Nawaqarua – as water level reaches critical level it then triggers the alarm pictured on the right.



Once the alarm system is triggered then the assigned personnel will switch on the siren which warns the villages to evacuate.

5.2.2.4 In addition JICA has also installed river gauges in 4 villages alongside the Ba River with the intention of providing real time data on rising river water levels.

The river gauges installed by the JICA project are used to measure water levels and/or water discharges. As water rises, measurements are taken. These data collected by the gauges is either telemetered (transmitted by satellite), sent by GPRS, or read manually by the Fiji Meteorology Services' Hydrology Unit. The data are utilised by the FMS to forecast floods. Illustrated in Figure 5.3 below is the telemeter installed and connected to the river gauges in the Ba River near Navala village.

Figure 5.3: River gauge connected to telemeters installed in the upper Ba River

Telemeter that's connected to river gauge in the Ba river alongside Navala village

5.2.2.5 As at the date of audit it was confirmed by the officers from the Hydrology Unit and the JICA Ba project officer that the data from the Navala telemetric station was not being transmitted to the server at FMS due to network deficiencies arising out of the location of the telemeter. This implies a lack of consultation between NDMO and JICA with the Hydrology Unit prior to the installation of the Project.

However the FMS conducts manual readings only if information on water level readings is required by Fiji Met Services during periods of heavy rainfall.

5.2.2.6 It was revealed that the JICA project would be handed over to the Hydrology Unit at the completion of the project by the end of 2013, and equipment will be maintained by the Hydrology Unit from thereon.

5.2.2.7 The installation of early flood warning system has enhanced the community and the NDMO's capacity enabling them to respond appropriately during flooding of the Ba River.

5.3 Fiji Meteorological Services

5.3.1 The Fiji Meteorological Services as lead agency together with implementing agencies have been tasked under the Policy Implementation Framework to strengthen early warning systems to ensure effective and timely communication to the public, with particular attention paid to isolated, hazard prone and disadvantaged areas[20].

5.3.2 To improve the flood early warning system, Cabinet endorsed that the Director of Meteorology be responsible for issuing flood warnings and forecasts from severe weather systems[21]. Cabinet also approved the transfer of the Hydrology Unit from the Water Authority of Fiji to the

[20] National Climate Change Policy: Policy Implementation Framework Objective 5 Strategy 12
[21] Cabinet Decision No. 170 of 8 May 2012

Department of Meteorology to facilitate improved capability for flood warnings by the Department of Meteorology.

5.3.3 The FMS Climate Service Division provides climate prediction, climate science and projections, and professional science based advice on climate related matters. Apart from these, it provides five (5) other routine reports. Three of these are produced every month namely, the Fiji Islands Climate Summary (FICS), Monasavu Rainfall Outlook and the Fiji Island Climate Outlook. The El Nino Southern Oscillation (ENSO) Update is produced bi-monthly while the Fiji Sugarcane Rainfall Outlook is produced quarterly. All these climate reports are provided to related key stakeholders via e-mail and uploaded on the Fiji Meteorological Website for the public. Apart from the above the Division also produces the Tropical Cyclone Seasonal Guidance (seasonal tropical cyclone prediction), quality control and archives both historical and current climate data.

The FMS also provides reports on extreme weather conditions such as drought *(meteorological and hydrological), tropical cyclone* flooding a*nd other rare meteorological events*. The provision of the Natural Disaster Monitoring Reports enables the various stakeholders to adequately plan and prepare for such situations. Reports normally include the scientific assessment and full evaluation of all the facts, figures and analytical analysis including prevailing, past and future climate and weather pattern indices which influence the national, regional and global weather and climate patterns on a daily, monthly, seasonal and even decade scale.

FMS has installed Automatic Weather Stations and telemetry climate stations to enhance weather and climate early warning systems around the country to timely and effectively respond to weather and climate related disasters and as well as climate change adaptation preparedness

5.3.4 It was confirmed during audit that the Hydrology Unit has installed 65 river flow monitoring stations and over 120 rainfall stations around Fiji including 8 telemetry stations for flood forecasting in Rewa delta. There are also more than 20 other rain gauge stations belonging to Fiji Met Services and the Fiji Sugar Corporation Limited.

Data gathered from the numerous river gauges installed around various locations in Fiji is used for monitoring water levels. These data gathered have been utilized previously for flood forecasting models. However it was confirmed from audit discussions with officers at Meteorological Services that currently the organization is unable to maximize the manipulation of data collected for future flood forecasting purposes due to a lack of hydrologist.

The Nadi Meteorological Office also forecasts rainfall using radar. Data is also collected on rainfall intensity as it has an impact on flood levels. Rainfall intensity and annual daily maximum rainfall is used in design of dams, bridges and culverts for roads.

5.3.5 It was also confirmed that the Hydrology Unit lacked the appropriate equipment to enable them to monitor rising water levels during floods, such as flood cables. The lack of appropriate equipment hinder the Unit from obtaining reliable and quality data that will assist them in drawing reliable flood forecasting models.

5.3.6 Under the IWRM Project, two flood warning systems have been put up in 2 locations in Nadi. The warning systems have been installed following extensive consultations and technical assessments determining water levels at which alerts were to be provided, and the protocols for the issuance of the warnings and activating the alarms. In the event of continuous rain and

in the likelihood of flooding, the Director Meteorological Services is empowered to issue flood warning and forecasts. Sirens from the flood warning systems which can be heard over a 10km radius are activated at the Director Meteorological Services' flood warning issuance.

The installation of the high powered sirens gives the residents of Nadi in low lying areas within the 10km radius sufficient time to evacuate to higher ground.

5.4 Integrated Water Resource Management (IWRM) Approach

5.4.1 Government has piloted a community integrated water resources management approach for Nadi River catchment to mitigate flood and land misuse disasters.

5.4.2 The IWRM project is funded by Global Environment Facility and is being implemented by United Nations Development Programme (UNDP), South Pacific Applied Geosciences Commission (SOPAC) and the Fijian Government through the Department of Agriculture's Land & Water Resource Management Unit (LWRM).

5.4.3 The objective of the IWRM Nadi Demo Project is to improve flood preparedness and integrate land and water management planning within the Nadi Basin using an integrated flood risk management approach where all the implementing agencies will have to be coordinated so as to avoid duplication of activities and resources and also enhance in the proper consultation process.

5.4.1 Establishing partnerships

5.4.1.1 Flooding is a high political priority for Fiji. Programmes for flood warning and disaster response are currently being developed in Fiji. Flood mitigation programs are also being undertaken. At present they mainly remain the responsibilities of the Fiji Meteorological Services, the Hydrology Unit, the National Disaster Management Council, the NDMO, the Land and Water Resource Management Division of the Ministry of Agriculture and municipal councils, while environment issues are dealt with by the Department of Environment and the CCU under Ministry of Foreign Affairs.

5.4.1.2 The audit noted that each of the above implementing government agencies are somewhat addressing flooding issues either directly or indirectly. However these activities are done in isolation. Each government agency is implementing the flood reduction and climate change adaption strategies as part of their KPI's that is assessed by the SFCCO and are not effectively coordinated in its objective to reduce flooding in Fiji.

According to IWRM the failure to address the impact of flooding occurs because responsibilities for land and water management in the catchment are fragmented or not appropriately assigned. Implementing agencies restrict their activities within their geographical and functional boundaries that are managed by developed larger institutions with wider geographical and functional boundaries thus creating clumsy and inefficient organisations that are out of touch with local situations.

The initiative of the pilot project by IWRM is to implement flood risk reduction strategies through an integrated approach and coordinated authorised body.

5.4.1.3 One of the IWRM principle is supporting national, provincial and municipal state institutions to work together to achieve a basin wide objective. This will include modernising existing working practices to include much wider stakeholder consultation and engagement using new approaches to ensure that all stakeholders are learning together, decision making is improved, partnerships are developed, and collaborative working is developed through working with the lives of the people who live within the floodplain areas and the wider basin.

5.4.1.4 The audit noted the IWRM Nadi Demonstration Project had put in place a proper governance structure that would oversee and coordinate the project's implementation through a coordinated body. This was done through the establishment of the Nadi Basin Catchment Committee (NBCC).

5.4.1.5 The Nadi Basin Catchment Committee (NBCC) is a multi-sectoral committee that has been formed to oversee and coordinate the implementation of the GEF Pacific IWRM Nadi Basin Demonstration Project. The project's objective is to improve flood preparedness and integrate land and water management planning within the Nadi Basin using an integrated flood risk management approach.

5.4.1.6 NBCC's members represent the key land and water resources stakeholders, both land and water managers and users within the Basin. The Project Management Unit under the LWRM Division acts as the secretariat for the NBCC. The 23 interim members include government representatives, statutory bodies, provincial offices and community representatives, academia, NGOs and regional organization representatives.

This committee is responsible for ensuring the smooth implementation of activities and achievement of outputs in line with the Demonstration Project Proposal.

However the term of the NBCCC will end with the completion of the Nadi IWRM Demo.

5.4.2 Project implementation

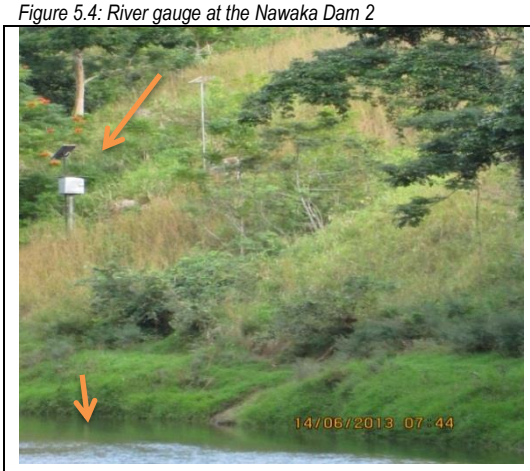
5.4.2.1 IWRM is defined as '*a process that promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*' (United Nations Food and Agriculture Organisation). IWRM implies an integrated approach, linking and consistently managing all sectoral activities that have a relation to water and it equally implies that the complexity of water resources demands a consultative approach to decision-making.

5.4.2.2 The audit noted that some flood risk reduction strategies identified in the IWRM Project's watershed management plan have been implemented in the Nadi Basin. Some of the projects include the installation of the river gauges; tsunami and flood warning sirens; community disaster risk management plan awareness and construction of flood dams.

5.4.2.3 River gauges have been installed in the Nawaka and the Nadi Rivers. These gauges measure water levels and provide real time data to the Fiji Meteorology Services' Hydrology Unit. The provision of real time data enables the Meteorology Office to issue flood warnings to the lower lying flood prone areas in Nadi within sufficient time prior to rising flood waters.

It was disclosed by the Hydrology Unit that to enable the FMS to issue flood warnings in ample time for inhabitants living in lower lying areas to evacuate quickly, the river gauges should be installed further up the catchment some distance from the dam. However it was observed during the site visit that the river gauge was installed quite near to the Nawaka dam 2 as illustrated in Figure 5.4 below. The river gauge has now been abandoned and consultations are being carried out between the IWRM and the Hydrology Unit on a new location for the river gauge.

Figure 5.4: River gauge at the Nawaka Dam 2



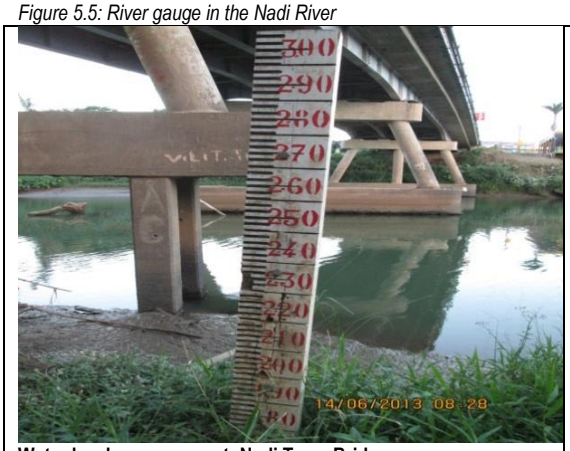
Nawaka River gauge installed in the upper catchment

River gauge in the upper catchment of Nawaka river

The second river gauge is installed in the lower line of Nadi Town next to the Nadi Bridge as illustrated in Figure 5.5 below.

From the first warning in the upper catchment Fiji Meteorological Services will then closely monitor the water level in the down catchment at the Nadi River. Once the water level reaches the critical level it triggers the warning in FMS and also to the Nadi Town Council Administrator. A flood warning text message is sent to all customers on the Vodafone and Digicel network to warn inhabitants living in low lying areas to evacuate and move to higher ground.

Figure 5.5: River gauge in the Nadi River



Water level measurement- Nadi Town Bridge

River gauge installed in the lower line of Nadi River , Nadi Town Bridge

5.4.2.4 Incidences of flooding in Nadi Town have resulted in the installation of tsunami and flood warning siren system as illustrated in Figure 5.6 below.

Figure 5.6: Flood warning siren

Flood warning siren installed in Sikituru village and in Nadi Town

Nadi Town during the flood

Under the IWRM project, the flood warning siren systems have been installed at two locations in Nadi, that is at Sikituri Village and one end of Nadi Town. The siren system is activated on receipt of confirmation from the Director of Meteorology once the water level has reached a critical level. The early warning system complements the IWRM project's initiative of building Community Disaster Management Committees to develop response plans and be the coordinating body liaising with NDMO.

5.4.2.5 IWRM has also engaged some NGO's in carrying out community awareness on disaster risk management plan. This plan serves as community manual in cases of disasters. Discussion with IWRM Project Manager revealed that engaging communities creates ownership amongst the villagers and reduces reliance on government to reducing disaster risk activities. Some of these activities could assist in either reducing, transferring or eliminating the flood risks such as clearance of their drainage system.

5.4.2.6 Constructions of flood dams were also part of the IWRM projects. Two flood dams were constructed by the Department of Agriculture's LWRM division in the Nawaka River and were funded under the Capital Watershed Management Program.

5.4.2.7 It was observed during a site visit to the Nawaka Dam 1 that there is a gap between one side of the dam and the river bank. Refer Figure 5.7 below. The breach on one side of the dam resulted from a rainfall storm event which generated flood waters in excess of the design standard adopted for the dam. The large volume of water from the rainfall storm event flowed over and beyond the dam eroding the opposite bank of the river.

Figure 5.7: Nawaka 1 dam

However IWRM and LWRM were able to re-construct another dam on the upper mouth of the river and observation revealed that this dam was well constructed and that proper consultation both with the LWRM unit and the Hydrology unit were conducted. Refer to the Figure 5.8 below for the newly constructed dam at Nawaka.

Figure 5.8: Nawaka dam 2

5.4.2.8 The audit noted that the IWRM Project's watershed management plan which identifies some flood risk reduction strategies and is funded by GEF through SOPAC will be completed by the end of 2013

5.4.2.9 It was also noted that consultations were made by the IWRM with the CCU when considering strategies to be implemented with respect to watershed management. For instance the CCU was consulted by the IWRM when considering mitigation strategy of diverting the Nadi River to reduce impacts of flooding in Nadi. The proposal to divert the Nadi River was based on recommendation from a research carried out by JICA.

5.4.2.10 The lack of proper consultation may result in failure of any flood risk reduction projects implemented and can also pose negative impacts to the surrounding environment.

RECOMMENDATIONS

Identification of effective adaptation measures by CCU

The CCU should identify strategies with the level of implementation expected

Vulnerability Assessments

The CCU should:

- pursue the endorsement of the vulnerability assessment tool; and
- develop appropriate criteria against which vulnerability assessments conducted can be assessed against to prioritise urgency of need for relocation and funding accordingly.

Approach to delivering disaster risk reduction activities

The NDMO should have a plan that categorises and prioritises projects and utilization of their mitigation funds.

Implementation of Flood Early Warning Systems

- The NDMO should consult the Fiji Meteorological Services when selecting locations for the installation of early flood warning devices.

- The Hydrology Unit should provide for funding in its annual budget to enable it to maintain the equipment.

Fiji Meteorological Services

The Fiji Meteorological Services should:

- seek to employ a hydrologist; and

- request funding to acquire necessary equipment required.

Integrated Water Resource Management approach

The LWRM should:

- pursue the endorsement for the NBCCC to continue its functions of planning and coordinating sustainable development and management of the Nadi Catchment water resources after the completion of the Nadi Demo Project;

- consider replication of this project to other parts of Fiji if successful; and

- ensure consultation with relevant technical stakeholders prior to implementing its projects.

Management Comments

Climate Change Unit

Recommendation is supported. In 2014 the CCU will work closely with the Ministry of iTaukei and the Ministry of Rural and Maritime Development and National Disaster Management in prioritising of the urgent communities to be assessed. As for the vulnerability assessment tool, this has been trialled out in 3 inland and coastal communities. The Roko Tuis have been taught the use of this tool and they can assist communities in its use and assessment

National Disaster Management Office

Approach to delivering risk reduction activities

Selection of projects for the utilization of mitigation funds is a thorough process from the community through the District Advisory Councils to Divisional Development Boards where issues from the Roko Tui's and Mata ni Tikina are also presented. These development issues are prioritized and finalized before Divisional Commissioners encapsulates it into their Divisional Development Plan and is presented for budget. All projects related to climate change adaptation and risk reduction are again assessed, prioritized by development officers and NDMO before being chosen for implementation the following budget year. The above process will encompass all necessary requirements that may be required for a government project to be approved.

Implementation of Flood Early Warning Systems

Recommendation is noted. NDMO will work towards fostering and strengthening working rapport with other government stakeholders and partner organization.

Fiji Meteorological Services

- *The FMS is re-advertising the Principal Hydrologist's post at the end of January and expects to get a qualified hydrologist soon. The FMS already has a Senior Hydrologist in the department, that is, Mr Viliame Vereivalu who has been trained for a year in Japan in Flood Mitigation and Forecasting. The FMS also has an officer Mr Paula Tawakece who is currently studying in the Philippines attending a one year Flood forecasting program under the World Meteorological Organisation funding. The FMS has appointed Mr Orisi Naba to be a scientific officer hydrologist in December 2013.*

- *The FMS Hydrology PSIP 2014 - Installation of new Telemetry Stations and Upgrading Communication Telemetry Network - Cost $284,000 for the Rewa bridge, Navua bridge, Rakiraki River, Semo River and Qawa River in Labasa.*

Lands and Water Resource Management Unit

The LWRM Division endorse the recommendations and will engage with key stakeholders and government agencies on mechanisms for the NBCC's continued role after the project. Replication of the project results is an objective that will also be pursued with government agencies such as NDMO for replication and relevant stakeholders for implementation

6.0 ACCOUNTABILITY AND REPORTING PROGRESS OF IMPLEMENTATION OF FLOOD RISK REDUCTION STRATEGIES

This section of the report seeks to determine whether progress of implementation of strategies by implementing agencies are being monitored and reported accordingly.

6.1 Monitoring of implementation of Climate Change Policy

6.1.1 The CCU should set regular progress reporting requirements for the agencies and regular review mechanisms. i.e. the CCU should regularly monitor, review and report on the implementation of the policy in collaboration with the implementing and lead agencies to ensure effective and timely implementation[22] and use the monitoring and review results to address under performance and improve future flood risk reduction/adaptation efforts.

To ensure effective and timely implementation, the CCU, in collaboration with the implementing and lead agencies, should monitor the implementation of the policy. Based on the quarterly progress report, the CCU should submit an annual progress report to the National Climate Change Country Team (NCCCT) [*now referred to as National Climate Change Coordination Committee (NCCCC)*] and the National Environment Council (NEC) on the implementation of the policy.

6.1.2 The Climate Change Policy which came into effect in 2012, anticipates most of the strategies to be implemented over the 5 year period 2012 to 2016, after which time the Policy will be reviewed for its effectiveness. Appendix 9 of the Climate Change Policy identifies the timelines within which strategies have to be implemented.

6.1.3 As the agency responsible under the NCCP for monitoring strategy implementation, lead agency effort and implementing agency efforts and providing updates to the NCCCT [now NCCCC], the CCU conducts annual monitoring of strategy implementation. Progresses of strategy implementation are discussed at the National Climate Change Coordination Committee (NCCCC) meetings in which the CCU provides feedback to the NCCCC. Other implementing agencies are represented at the NCCCC meetings and provide an update on the implementation of the strategies.

The NCCCC was formed in 2012 to carry out the functions previously conducted by the NCCCT. Members include heads of all relevant public sector agencies.

Monitoring of implementation of strategies is made by the implementing agencies through their normal required institutional reporting process.

[22] National Climate Change Policy Section 8 Page 26

6.1.4 Audit was provided with minutes from the NCCCC's last meeting held in March 2013 where updates on efforts carried out by agencies were presented. Proposed course of actions were also presented to the NCCCC.

6.1.5 With the lapse of a year and a half since the Policy was implemented, the CCU does not have any knowledge of the extent to which the strategies identified in the policy have been implemented, and whether they have been effective.

6.1.6 Fiji has a reporting obligation under the UNFCCC where it provides national communication on vulnerabilities and adaptations assessment. Fiji has provided 2 national communications in 2010 and 2012 respectively.

6.1.7 Active monitoring by the CCU will provide assurance as to whether strategies identified are successful or not, thus providing Government with relevant information to make informed decisions on proposed actions with regards to the strategies.

6.1.8 On-going monitoring also assesses whether the implemented activities lead to the entities' defined objectives.

6.2 Accountability and reporting on progress of implementation of strategies by NDMO

6.2.1 The NDMO should have established performance measures, indicators, targets and benchmarks (as applicable), and data requirements for monitoring progress in implementing the agreement and in achieving the objectives and goals for flood disaster risk reduction, including adaptation measures. The NDMO should have set regular progress reporting requirements for the agencies and levels of government, as well as regular review mechanisms. The National Disaster Risk Management Council (NDRMC) should provide oversight of the work of the Committees and sub committees formed to execute specific tasks[23]

The NDM Act requires the NDMO to regularly monitor, audit, review and report on the implementation of the agreement in collaboration with the implementing and lead agencies to ensure effective and timely implementation and use the monitoring and review results to address under performance and improve future flood risk reduction/adaptation efforts. The Executive of the National Disaster Risk Management provide policy oversight of national disaster risk reduction and disaster management initiatives[24]

6.2.2 The audit noted that performance measures, indicators, and targets are identified in the agency's Annual Corporate Plan and Business Plan. The NDMO submits quarterly reports to the Management of the Ministry of Provincial Development providing updates on achievements of targets set. This is also reviewed by the Strategic Framework for Change and Coordination Office (SFCCO) to establish achievement of corporate goals. Achievement of performance targets could not be established during the time of audit as required quarterly reports were not submitted for audit review.

[23] Fiji National Disaster Risk Management Act Section 2.4
[24] Fiji National Disaster Risk Management Act Section 2.3

6.2.3 In 2013, the NDMO conducted site inspections of Projects undertaken by the Divisional Provincial Offices. Quarterly Project Progress Reports were submitted by the Divisional Provincial Offices to the Ministry of Finance to acquit for funds received to implement Projects.

6.2.4 Regular monitoring and reporting on the implementation of strategies encourage the effective and timely implementation of strategies identified. Monitoring and reviewing results can be used to address under-performance and improve flood risk reduction/ adaptation strategies.

RECOMMENDATIONS

Monitoring of implementation of climate change policy

The CCU should:

- develop a review schedule to ascertain frequency of reviews to be conducted on implementing agencies implementing each strategy identified in the Climate Change Policy;
- identify data/information required from implementing agencies to determine whether or not the objectives and goals of the Policy have been achieved;
- monitor progress of implementation of the strategies identified in the Climate Change Policy against key performance measures or indicator to provide assurance on the achievements of implementation;
- direct implementing agencies to submit a copy of their progress reports to determine whether or not the objectives and goals of the Policy have been achieved; and
- submit its annual progress report to the NCCCC as required.

Accountability and reporting on progress of implementation of strategies

The NDMO should:

- maintain records of progress reporting on projects implemented and submit a copy of the progress report to the CCU; and
- monitor progress of implementation against performance indicators and targets.

Management Comments

CCU

Recommendation supported. The CCU will work very closely with the implementing agencies in 2014 to monitor the progress of work on the strategies and also an M&E tool will be developed to assist in this regard. In addition to this, Ministries have been approached to incorporate the strategies in their respective ACPs. Discussions have been on-going with Ministry of Strategic Planning for Climate Change and Disaster Risk Management to be one of the targeted outcomes for Ministries to report on.

National Disaster Management Office

Accountability and Reporting on Progress of Implementation of Strategies

NDMO accepts recommendation and will ensure that records of progress reporting on projects are maintained. NDMO has created a tracking matrix template to keep tract of the progress of project implementation against performance indicators and targets.

7.0 CONCLUSION

7.1 Institutional arrangements for the implementation of flood risk reduction strategies are provided for in policy statements, plans, and strategies developed over the years such as the National Climate Change Policy, the National Climate Change Adaptation Strategy, the Joint National adaptation Plan, the CHARM tool, etc. The National Climate Change Policy sets the platform for collaboration among government agencies, stakeholders through organised planning, and implementation of national and local climate change programs. However accompanying strategies facilitating the integration of climate change issues into relevant sectors and supporting provisions of technical and financial resources such as the NCCAS, JNAP, and CHARM are still yet to be endorsed or capitalised on. The NDM Act however requires a review to incorporate disaster risk management provisions and which will also support and strengthen coordination of disaster risk management activities and stakeholder representation in a national platform for a whole country approach as provided for in the NDRMA.

7.2 Although the reviewed legislation is yet to be endorsed, disaster risk management mechanisms are being effectively implemented. Despite the lack of an all-encompassing coordination arrangement, the implementing agencies are effectively implementing flood reduction strategies as required under their various mandates and within the resources available. Strategies implemented consider lessons learned from previous flooding incidences. As a result of lessons learnt from previous flooding incidents, implementing agencies have improved their work strategies. For example, installation of early flood warning systems, dredging of rivers, construction of retention dams in the upper river catchment; creating awareness in the communities regarding climate change issues, and consideration of climate proofing in the design and construction of road infrastructures and constructing bridges at a higher altitude;. Implementation of strategies by implementing agencies in flood prone areas is effective as evident in the recent spate of bad weather in December 2012 where not much havoc were caused by flooding or casualties arising therefrom.

7.3 There is a lack of monitoring by the CCU to provide assurance as to the effectiveness of the Climate Change Policy strategies implemented. However implementing agencies are conducting sufficient monitoring over the risk reduction strategies they are implementing and reporting to their respective superiors accordingly. Although progress of implementation of certain strategies implemented are reported on during the National Climate Summits, there is no mechanism to establish the overall status of implementation of strategies outlined in the National Climate Change Policy and their outcomes. Monitoring capacities also need strengthening.

8.0 REFERENCES

1) Auditing the Government Response to Climate Change; Guidance for Supreme Audit Institutions 2010

2) Draft Climate Change Finance Guideline

3) Draft Coordination Guideline

4) Draft Relocation Guideline

5) Fiji's First National Communication Under the Framework Convention on Climate Change 2005

6) Fiji National Assessment Report 2010

7) Fiji National Disaster Risk Management Arrangements 2006

8) Fiji Second National Communication; Vulnerability and Adaptation Chapter- SNC Report 2012

9) Implementation of the Hyogo Framework for Action and the Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005-2015 June 2009.

10) Integrated Coastal Management Framework of the Republic of Fiji 2011

11) Joint National Action Plan

12) National Climate Change Adaptation Strategy (draft)

13) National Climate Change Policy

14) National Disaster Management Arrangement 2008 (draft)

15) National Disaster Management Plan 1995

16) Natural Disaster Management Act 1998

17) Regional Comprehensive Hazard and Risk Management (CHARM) Guidelines

APPENDIX 1: STAKEHOLDERS INVOLVED IN THE NATIONAL CLIMATE CHANGE POLICY CONSULTATION PROCESS

Government sector stakeholders	Non- governmental stakeholders
Climate Change Unit	Pacific Council of Churches
Ministry of Strategic Planning, National Development and Statistics	South Pacific Applied Geoscience Commission (SOPAC)
Solicitor General's Office	Secretariat of the Pacific Communities
Ministry of Provincial Development	University of the South Pacific
Department of Local Government, Urban Development, Housing & Environment	South Pacific Regional Environmental Program (SPREP)
Ministry of Agriculture	IUCN
Ministry of Health	Forum Secretariat
Ministry of Fisheries and Forestry	Non Government Organisations (NGOs)
Ministry of Works, Transport & Public Utilities	Fiji National University
Department of Tourism	University of Fiji
Department of Social Welfare	
Department of Lands	
Ministry of Foreign Affairs	
National Disaster Management Office	
Department of Meteorological Services	
Department of Energy	
Ministry of Information	
Ministry of Education	
Ministry of i-Taukei & Multi ethnic Affairs	
Department of Environment	
Department of Town & Country Planning	

Source: National Climate Change Policy

APPENDIX 2: ROLES AND RESPONSIBILITIES OF KEY AGENCIES AND THEIR MANDATES

Agency	Roles and Responsibilities	Existing climate change related legislation, policies, plans and programs
Ministry of Strategic Planning, National Development & Statistics	✓ Integrate related disaster risk reduction and climate change adaptation strategies and actions into national and sectoral planning to streamline responses	✓ The People's Charter for change, peace and progress, 2008 ✓ Roadmap for Democratic Sustainable Socio Economic Development 2009-2014 ✓ Fiji National Strategic Development Plan(SDP) 2007-2011
Climate Change Unit	✓ Include vulnerability assessment and climate change impact projections into resource management planning such as integrated coastal and watershed management plans ✓ Support the ecosystem based approach throughout Fiji, recognizing that ecosystem services such as food security, natural hazard mitigation, and physical coastal buffer zones increase resilience ✓ Use appropriate consultation mechanisms for the participation of all members of the community in the planning, management and implementation of adaptation measures ✓ Mobilise resources and all sectors to support the implementation of relevant national adaptation strategies and plans such as the National Climate change Adaptation Strategy (NCCAS), the planned Joint National Action Plan (JNAP) for CCA and DRM and the National Disaster Risk Management Plan (NDRMP)	✓ National Climate Change Policy ✓ ✓ National Climate Change Adaptation Strategy (draft)
National Disaster Management Office	✓ Develop adaptation technologies that take traditional knowledge into account and are culturally acceptable ✓ Develop and make accessible hazard maps of coastal, riverine, urban and inland areas in Fiji, using the comprehensive hazard assessment and risk management (CHARM) tool to guide all development planning ✓ Improve disaster response, capacity and access to public health facilities, emergency services, communication services, and evacuation centres	✓ Natural Disaster Management Act, 1998 ✓ National Disaster Management Action Plan, 1998 ✓ Disaster Risk Reduction and Disaster Management: a framework for action 2005-2015 ✓ Joint National Action Plan(draft)
Fiji Meteorological Services	✓ Strengthen early warning systems to ensure effective and timely communication to the public with particular attention paid to isolated, hazard prone and disadvantaged areas.	✓ National Climate Change Policy

Source: National Climate Change Policy