



**IMPLEMENTATION OF THE  
HYOGO FRAMEWORK FOR ACTION  
and the  
PACIFIC DISASTER RISK REDUCTION AND  
DISASTER MANAGEMENT FRAMEWORK FOR ACTION  
2005 – 2015**

**REPORT FOR THE PERIOD OF 2009 – 2013**



**REGIONAL SYNTHESIS PROGRESS REPORT**





### **Our Mission**

The mission of the SPC is “to help Pacific island people position themselves to respond effectively to the challenges they face and make informed decisions about their future and the future they wish to leave for the generations that follow.

### **Our Goal**

The goal of the Applied Geoscience and Technology Division is to apply geoscience and technology to realise new opportunities for improving the livelihoods of Pacific communities.

Published by: Applied Geoscience and Technology Division (SOPAC) 2013

Layout & design by: Sailesh Kumar Sen (SPC-SOPAC Division)

Cover photo: SPC-SOPAC Division

Printed by: STAR Printery  
Suva  
Fiji

Available from: Applied Geoscience and Technology Division (SOPAC)  
Private Mail Bag, GPO Suva, Fiji  
Telephone: (679) 338 1377  
Fax: (679) 337 0040  
E-mail: [moseses@spc.int](mailto:moseses@spc.int)  
[www.pacificdisaster.net](http://www.pacificdisaster.net)  
[www.sopac.org](http://www.sopac.org)

**IMPLEMENTATION OF THE  
HYOGO FRAMEWORK FOR ACTION  
and the  
PACIFIC DISASTER RISK REDUCTION AND  
DISASTER MANAGEMENT FRAMEWORK FOR ACTION  
2005 – 2015**

**REPORT FOR THE PERIOD OF 2009 – 2013**

**REGIONAL SYNTHESIS PROGRESS REPORT**





# Acknowledgement

This regional synthesis report on the implementation of the Hyogo Framework for Action 2005 – 2015 (HfA) and the Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005 - 2015 (RfA) has been prepared by the Applied Geoscience and Technology Division (SOPAC) of the Secretariat of the Pacific Community (SPC) through the information received from a range of sources including the primary contact points of national authorities on disaster risk management in the Pacific region. As such, SPC would like to acknowledge their contributions. The national authorities are known in the region as the National Disaster Management Office (NDMO). Other organisations that have contributed to this report are members of the Pacific Disaster Risk Management Partnership Network (PDRMPN) and are listed as follows.

This report was prepared by Anna Gero (Research Consultant, Institute for Sustainable Futures, Consultant DRP), Stephanie Zoll, Mosese Sikivou, Litea Biukoto, Kirstie Meheux, Jutta May and Waisale Naqiolevu of SOPAC's Disaster Reduction Programme; and done in partnership with the Secretariat of the UNISDR Asia-Pacific office. Funding support was provided by the World Bank Global Facility for Disaster Reduction and Recovery (GFDRR) which is gratefully acknowledged.



# Members of the Pacific Disaster Risk Management Partnership Network

1. National Disaster Management Offices (or equivalent) of all PICTs
2. Applied Geoscience & Technology Division (SOPAC). Secretariat of the Pacific Community
3. Pacific Islands Forum Secretariat (PIFS)
4. Secretariat for the Pacific Regional Environment Programme (SPREP)
5. Secretariat of the Pacific Community (SPC)
6. International Federation of the Red Cross and Red Crescent (IFRC)
7. United Nations Development Programme (UNDP)
8. United Nations Development Programme – Pacific Centre (UNDP PC)
9. United Nations Office of the Coordination for the Humanitarian Affairs (OCHA)
10. United Nations Office for Disaster Risk Reduction (UNISDR)
11. United Nations Children’s Fund (UNICEF)
12. Asian Development Bank (ADB)
13. The Asia Foundation (TAF) / USAID Office of US Foreign Disaster Assistance (OFDA)
14. United Nations Economic and Social Commission for Asia and the (UNESCAP)
15. Pacific Disaster Center (PDC)
16. South Pacific Tourism Organisation (SPTO)
17. University of the South Pacific (USP)
18. Fiji National University - College of Medicine & Nursing (FNU)
19. Fiji Meteorological Service/Regional Specialised Meteorological Centre (FMS)
20. World Meteorological Organization (WMO)
21. Australasian Fire Authorities Council (AFAC)
22. Emergency Management Australia (EMA)
23. New Zealand Ministry of Civil Defence and Emergency Management (NZMCDM)
24. Ministry of Foreign Affairs-France
25. World Bank (WB)
26. European Union, Pacific Delegation (EU)
27. Australian Agency for International Development (AusAID)
28. New Zealand Aid Programme (NZAid)
29. Foundation of the Peoples of the South Pacific International (FSPI)
30. Save the Children NZ
31. Pacific Power Association
32. United Nations High Commissioner for Refugees (UNHCR) Regional Office for Australia
33. Pacific Islands Fire Services Association (PIFSA)
34. NOAA/National Weather Service
35. World Vision NZ
36. Pacific Conference of Churches
37. International Union for the Conservation of Nature
38. Adventist Disaster Relief Agency
39. Australian Bureau of Meteorology
40. GNS Science (NZ)
41. Geoscience Australia
42. Maddocks (Australia)
43. Pacific Islands Telecommunications Association
44. South Pacific Engineers Association
45. Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)
46. Oxfam NZ
47. Japan International Cooperation Agency (JICA)
48. Care International Vanuatu
49. East-West-Center
50. University of New South Wales
51. World Health Organization (WHO)
52. South Pacific Board of Educational Assessment

# Acronyms

ACP	African, Caribbean and Pacific Group of States	EPICS	Engineering Project in Community Service
ADB	Asian Development Bank	EU	European Union
ADRA	Adventist Development and Relief Agency	EWS	Early Warning System
AFAC	Australasian Fire Authorities Council	FERN	Frontline Emergency Response Network
ALERT	Automatic Link to Emergency Radio Transmissions	FFWS	Flood Forecasting and Warning System
ATWS	Australian Tsunami Warning System	FIE	Fiji Institution of Engineers
AusAID	Australian Agency for International Development	FIR	Flight Information Region
AWS	Automatic Weather Stations	FLIS	Fiji Lands Information System
BOM	Australian Bureau of Meteorology	FNU	Fiji National University
BOMI	Bank of the Marshall Islands	FSM	Federated States of Micronesia
CADRE	Climate Adaptation, Disaster Risk Reduction, and Education Program	FSPI	Foundation of the Peoples of the South Pacific International
CBDRM	Community Based Disaster Risk Management	GEF	Global Environment Facility
CC	Climate Change	GFDRR	World Bank Global Facility for Disaster Reduction and Recovery
CCA	Climate change adaptation	GIS	Geographic Information System
CCCCC	Caribbean Community Climate Change Centre	GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
CCCI	Climate Change Cook Islands	HFA	Hyogo Framework for Action
CCCPIR	Coping with climate change in the Pacific Island Region	HYCOS	Hydrological Cycle and Observation System
CCDC	Climate Change and Development Community	IASC	Inter-Agency Standing Committee
CDEMA	Caribbean Disaster and Emergency Management Agency	IDA	Initial Damage Assessment
CES-CCC	CROP Executives Subcommittee on Climate Change	IDM	Introduction to Disaster Management
CEO	Chief Executive Officer	IDRR	International Day for Disaster Reduction
CIDRA	Climate Impact and Disaster Risk Assessment Project	IFM	Integrated Flood Management
CIM	Coastal Infrastructure Management	IFRC	International Federation of the Red Cross and Red Crescent Societies
CLEWS	Climate Early Warning System	IOC	Intergovernmental Oceanographic Commission
CLGF	Commonwealth Local Government Forum	IOM	International Organization for Migration
CRMI	Caribbean Risk Management Initiative (UNDP)	IWRM	Integrated Water Resources Management
CROP	Council of Regional Organisations of the Pacific	JAXA	Japan Aerospace Exploration Agency
CSIRO	Commonwealth Scientific and Industrial Research Organisation	JICA	Japan International Cooperation Assistance
DALA	Damage and Loss Assessment	JNAP	Joint National Action Plan for DRM and CCA
DCCEE	Australian Department of Climate Change and Energy Efficiency	LiDAR	Light Detection And Ranging
DIMS	Disaster Information Management Systems	LRD	SPC's Land and Resource Division
DRM	Disaster Risk Management (comprising DRR and DM)	LWRM	Land and Water Resources Management
DRR	Disaster Risk Reduction	MCDEM	New Zealand Ministry of Civil Defence & Emergency Management
ECLAC	Economic Commission for Latin America and the Caribbean	MNRE	Samoa's Ministry of Natural Resources and Environment
EDF	European Development Fund	MoU	Memorandum of Understanding
EIE	Education in Emergency	MVN	Melanesian Volcanological Network
EOC	Emergency Operations Centres	NAP	National Action Plan
EMCI	Emergency Management Cook Islands	NC3	RMI National Climate Change Committee
		NBC	National Building Code
		NCCA	National Council of Churches of Australia
		NEMO	National Emergency Management Office





NDMO	National Disaster Management Offices	RMSD	Regional Meteorological Services Directors
NFA	National Fire Authority (Fiji)	ROC	Republic of China (Taiwan)
NGO	Non-government organisation	RWH	Rain Water Harvest
NIWA	National Institute of Water and Atmospheric Research (NZ)	RWSC	Regional Water and Sanitation Consultations
NMHS	National Maritime Historical Society	SIAM	Samoa Infrastructure and Asset Management
NWP	Numerical Weather Prediction	SICHE	Solomon Islands College of Higher Education
NZAID	New Zealand International Aid & Development Agency	SOP	Standard Operating Procedures
NZMCDDEM	New Zealand Ministry of Civil Defence & Emergency Management	SOPAC <sup>1</sup>	Applied Geoscience & Technology Division of the Secretariat of the Pacific Community
OCHA	United Nations Office for the Coordination of Humanitarian Affairs	SPC	Secretariat of the Pacific Community
OCTs	Overseas Countries and Territories	SPREP	Secretariat for the Pacific Regional Environment Programme
P3DM	Participatory 3D Modelling	SWFDDP	Severe Weather Forecasting and Disaster Risk Reduction Demonstration Project
PACC	Pacific Adaptation to Climate Change	TAF/OFDA	The Asia Foundation/Office of US Foreign Disaster Assistance
PACE SD	Pacific Centre for Environment and Sustainable Development	TANGO	Tuvalu Association of non-government organisations
PCC	Pacific Council of Churches	TBR	Together Becoming Resilient project
PCCSP	Pacific Climate Change Science Program	TC	Tropical Cyclone
PCCRTT	Pacific Climate Change Round Table	UN	United Nations
PCIDRR	Pacific Community-focused Integrated Disaster Risk Reduction Project	UNDAC	United Nations Disaster Assessment and Coordination
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative	UNDG	United Nations Development Group
PDC	Pacific Disaster Centre	UNDP	United Nations Development Programme
PDN	Pacific Disaster Net	UNDP PC	UNDP Pacific Centre
PDRMPN	Pacific Disaster Risk Management Partnership Network	UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
PEHRI	Pacific Enhanced Humanitarian Response Initiative	UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
PFA	Priority for Action	UNESCO	United Nations Educational, Scientific and Cultural Organization
PIC	Pacific Island Country	UNFPA	United Nations Population Fund
PICT	Pacific Island Countries and Territories	UNHCR	United Nations High Commissioner for Refugees
PIFACC	Pacific Islands Framework of Action on Climate Change	UNICEF	United Nations Children's Fund
PIFS	Pacific Islands Forum Secretariat	UNISDR	United Nations Office for Disaster Risk Reduction
PIFSA	Pacific Islands Fire Services Association	UNOOSA	United Nations Office for Outer Space Affairs
PHT	Pacific Humanitarian Team	UNSW	University of New South Wales
PNG	Papua New Guinea	USAID	United States Agency for International Development
PREL	Pacific Resources for Education and Learning	USP	University of the South Pacific
PRIF	Pacific Region Infrastructure Facility	UWI	University of the West Indies
PTWC	Pacific Tsunami Warning Centre	VHT	Vanuatu Humanitarian Team
REWS	Regional Early Warning Strategy	WACC	Working Arm of the CES-CCC
RFA	Regional Disaster Risk Reduction and Disaster Management Framework for Action: An Investment for Sustainable Development in Pacific Island Countries 2005 – 2015	WASH	Water, Sanitation and Hygiene
RMI	Republic of the Marshall Islands	WHO	World Health Organisation
		WMO	World Meteorological Organisation

<sup>1</sup> SOPAC was the Pacific Islands Applied Geoscience Commission until 1 January 2011, when it was formally integrated into the Secretariat of the Pacific Community as the Applied Geoscience and Technology Division.





# Table of Contents

ACKNOWLEDGEMENT .....	iii
MEMBERS OF THE PACIFIC DISASTER RISK MANAGEMENT PARTNERSHIP NETWORK.....	iv
ACRONYMS.....	v
TABLE OF CONTENTS.....	1
EXECUTIVE SUMMARY.....	2
CHAPTER 1 BACKGROUND AND METHODOLOGY.....	5
Regional DRR & DM Framework for Action.....	6
Hyogo Framework for Action.....	6
Report Structure.....	7
Methodology.....	7
CHAPTER 2 THE CURRENT STATUS OF DISASTER RISK MANAGEMENT INITIATIVES IN THE PACIFIC REGION.....	8
<b>(Sub-)Regional Indicator 1:</b> A (sub-)regional framework, strategy or action plan for disaster risk reduction exists.....	9
<b>(Sub-)Regional Indicator 2:</b> A multi-sectoral (sub-)regional institutional mechanism exists.....	9
<b>(Sub-)Regional Indicator 3:</b> Institutional mechanism in place to monitor risk reduction status and progress at (sub-)regional level.....	11
<b>(Sub-)Regional Indicator 4:</b> (Sub-)regional training /capacity building programmes / institutions exist to support capacity building on DRR at national / regional levels.....	11
<b>(Sub-)Regional Indicator 5:</b> Institutional mechanism and procedures are in place to carry out trans-boundary risk assessments.....	13
<b>(Sub-)Regional Indicator 6:</b> (Sub-)regional early warning systems exist.....	14
<b>(Sub-)Regional Indicator 7:</b> (Sub-)regional information and knowledge sharing mechanism available.....	15
<b>(Sub-)Regional Indicator 8:</b> (Sub-)regional research institutions for disaster risk reduction exist.....	16
<b>(Sub-)Regional Indicator 9:</b> DRR is an integral objective of (sub-)regional policies and plans....	17
<b>(Sub-)Regional Indicator 10:</b> (Sub-)regional infrastructure projects (viz. cross border transport network, dams etc) have processes to assess disaster risk impacts.....	18
<b>(Sub-)Regional Indicator 11:</b> (Sub-)regional response mechanism in place to address disaster preparedness, emergency relief and rehabilitation issues across borders.....	19
<b>(Sub-)Regional Indicator 12:</b> (Sub-)regional contingency mechanism exists to support countries in post-disaster recovery.....	20
<b>(Sub-)Regional Indicator 13:</b> (Sub-)regional catastrophe risk pooling facility available.....	20
<b>(Sub-)Regional Indicator 14:</b> (Sub-)regional information exchange mechanism in place for effective communication during trans- boundary disasters.....	21
CHAPTER 3 DISASTER RISK MANAGEMENT IN PACIFIC ISLAND COUNTRIES: SYNTHESIS OF NATIONAL PROGRESS.....	22
CHAPTER 4 CHALLENGES, FUTURE OUTLOOK AND RECOMMENDATIONS.....	35
Challenges.....	36
Future Outlook and Recommendations.....	36
REFERENCES.....	38
APPENDIX .....	41

# Executive Summary

This Regional Synthesis Report provides a review and analysis of progress since 2009 towards disaster risk reduction and disaster management in the Pacific region. Successes and ongoing challenges are measured against the global Hyogo Framework for Action's (HFA's) Priorities for Action and Indicators and the Pacific's Regional Disaster Risk Reduction and Disaster Management Framework for Action's (RFA's) Themes and Key Activities. Given the strong synergies between disaster risk reduction (DRR) and Climate Change Adaptation (CCA), progress includes capturing relevant Climate Change (CC) related programs, initiatives and mechanisms across the region so as to put into practice the rhetoric surrounding the integration of these fields.

The links between the two frameworks are provided in the table below.

HYOGO FRAMEWORK FOR ACTION	REGIONAL FRAMEWORK FOR ACTION
<b>Priority for Action 1</b> Ensure that disaster risk reduction is a national priority with a strong institutional basis for implementation	<b>Theme 1</b> Governance – Organisational, Institutional, Policy and Decision Making Frameworks
<b>Priority for Action 2</b> Identify, assess and monitor disaster risks and enhance early warning systems	<b>Theme 3</b> Analysis and Evaluation of Hazards, Vulnerabilities and Elements at Risk  <b>Theme 5</b> Effective, Integrated and People-Focused early Warning Systems
<b>Priority for Action 3</b> Use knowledge, innovation and education to build a culture of safety and resilience at all levels	<b>Theme 2</b> Knowledge, Information, Public Awareness and Education
<b>Priority for Action 4</b> Reduce the underlying risk factors	<b>Theme 6</b> Reduction of Underlying Risk Factors
<b>Priority for Action 5</b> Strengthen disaster preparedness for response	<b>Theme 4</b> Planning for effective Preparedness, Response and Recovery

Progress has been summarised according to the following broad themes, and is also linked to the HFA Priorities for Action and the RFA's Themes

## Better organised

- The Pacific Disaster Risk Management Partnership Network (PDRMPN) has developed into an active multi-partner collaborative network, communicating and cooperating across various platforms. PDRMPN Working Groups further allow for more specific and targeted discussions amongst regional partners (Priority for Action 1; RFA Theme 1).
- Members of the PDRMPN have provided strategic support to Pacific Island Countries (PICs) in the development of disaster risk reduction (DRR) related policies and plans. For example, most PICs have either National Action Plans for Disaster Risk Management (NAPs) or Joint National Action Plans for DRM and Climate Change (JNAPs), or are in the process of developing them with the support of regional partners, e.g. Palau, Federated States of Micronesia (FSM), Solomon Islands and Fiji (Priority for Action 1; RFA Theme 1).
- Governance arrangements have been developed across parts of the region and as a result of DRM and CC being prioritized nationally. For example, in the Cook Islands, the strategic placement of the Emergency Management Cook Islands (EMCI) and the newly established Climate Change Office under the Office of the Prime Minister and the emerging National Advisory Board on CCA and DRM in Vanuatu which is jointly supported by the Vanuatu Meteorology and Geohazards Department and the National Disaster Management Office (Priority for Action 1; RFA Theme 1).
- The Pacific Humanitarian Team (PHT), coordinated by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) and following the United Nations Cluster approach, is enhancing system-wide disaster preparedness and technical capacity to respond to humanitarian emergencies in the Pacific region. Vanuatu developed its own national cluster approach through its Vanuatu Humanitarian Team (VHT). Solomon Islands on the other hand adopted a similar approach whereby international assistance is coordinated through its national arrangements with key national agencies as cluster leads (Priority for Action 5, RFA Theme 4).

## Better informed

- Pacific Disaster Net (PDN – [www.pacificdisaster.net](http://www.pacificdisaster.net)) is becoming a widely used and comprehensive source of DRM information for the region. In-country and regional information, alerts from different sources, more than 10,000 documents, more than 1200 past events with loss and damage details, contact information,



a calendar for trainings and meetings and a vast array of country data (policies, plans, reports, etc.) are available in PDN. Mailing lists support the sharing of information and a Forum is available for online discussions. Training and information sessions on the use of PDN are further elements of progress for national agencies and NGOs (Priority for Action 3, RFA Theme 2).

- Similar to the Pacific Disaster Net, the Secretariat of the Pacific Regional Environment Programme (SPREP), in collaboration with its partners developed the Pacific Climate Change Portal ([www.pacificclimatechange.net](http://www.pacificclimatechange.net)) which houses future information on climate change in the Pacific region. (Priority for Action 3, RFA Theme 2).
- Formal incorporation of DRM and CC into school curricula is beginning to occur in some PICs (e.g. Samoa, Republic of the Marshall Islands (RMI), FSM, Kiribati), while new courses are being developed at tertiary and professional levels on DRM and climate change issues, including a new post-graduate certificate course in Disaster Risk Management at Fiji National University and the University of the South Pacific's (USP's) new Post Graduate Diploma Program in Climate Change and Masters in Climate Change (Priority for Action 3, RFA Theme 2).
- Recognition of DRM and CC as important development issues is progressing at both national and regional levels. This is in part due to the dedication of regional partners offering support to PICs through various mechanisms. For example, FSM's Climate Change Policy requires "all development activities in FSM to take into account projected climatic changes in the design and implementation" (Priority for Action 4; RFA Theme 6).
- Awareness of climate change and diverse climate change adaptation options is also improving. Climate change policies are being developed across the region and are increasingly inclusive of input and concerns of well-informed local communities (Priority for Action 4, RFA Theme 6).

#### **Future focused and proactive**

- Integrated regional support, particularly from SPC and SPREP, to boost national capacity looks to the future needs of PICs in terms of skills and knowledge and experience. Evidence of this is provided by discussions surrounding an integrated regional strategy for DRM and Climate Change (Priority for Action 1; RFA Theme 1).
- Diverse and vocal representation of the Pacific at global events such as at the Second and Third Session of the Global Platform for Disaster Risk Reduction (Priority for Action 3, RFA Theme 2).
- Annual Pacific Platform for DRM Meetings are a proactive approach to bring together DRM and CCA practitioners from across the region to discuss relevant issues. Linking in with other regional meetings (such as the Regional Water and Sanitation Consultations in 2012 and the Joint Meeting of the Pacific Platform for DRM and the Pacific Climate Change Roundtable 2013) is another insightful way to further draw upon the connections between broad DRR policy and sector-specific interventions to reduce disaster risk (Priority for Action 1, RFA Theme 1).

#### **Inclusive approach**

- Community-based approaches to DRM and CC are proving effective in addressing risk at the local level. Numerous projects and initiatives across the region have led to communities working with NGOs, local government and regional organisations to build local capacity and enhance resilience at the local level. An example is Foundation of the People of the South Pacific International's (FSPI) community-based project in Tuvalu and Samoa – "Increasing Community Resilience to Natural Disasters through Use of Traditional Coping Strategies" (Priority for Action 4, RFA Theme 6).
- Efforts are being made at regional and national scales to include the diverse range of relevant DRM actors and stakeholders in DRM and CC decision making. For example, PDRMPN Working Groups are inclusive of NGOs and development partners (Priority for Action 1, RFA Theme 1).
- National DRM and climate change bodies are increasingly inclusive of local government representatives, NGOs and civil society groups. For example in the Cook Islands, the newly established Climate Change Cook Islands (CCCI) has NGO, private sector and civil society membership and liaises closely with the National Disaster Council (Priority for Action 1, RFA Theme 1).
- Acknowledging the needs of vulnerable groups (e.g. women, children, and people with disabilities) is slowly being addressed in some countries however this is certainly an area in need of further attention. An example is found in FSM, where the Pohnpei Island Food Community is working on food security programs in partnership with churches, youth, women and schools. Gender issues are also beginning to receive more attention in FSM with the establishment of a National Commission on the Status of Women in 2010 (Priority for Action 4, RFA Theme 6).

#### **Challenges are summarised under the following broad themes**

##### **Governance and institutional arrangements**

- Despite some reported progress in this area, more is needed in many PICs to provide the institutional basis for progress in DRM, particularly in relation to integration with CCA. As noted in a United Nations Office for

Disaster Risk Reduction and United Nations Development Programme 2012 report: “effective integration of CCA and DRM is based on the knowledge and commitment of individuals at the national level and on the ability of the responsible government agencies to work together closely” (UNISDR and UNDP, 2012: iii).

#### Links between DRM and development

- Some PICs struggle with enforcement of various regulatory instruments such as Environmental Impact Assessments and other mechanisms designed to integrate DRM and CC into development planning.
- In some PICs, traditional land owners have legal rights to over-rule local government regulations (e.g. in RMI). This presents challenges if land owners are not aware of the links between some development practices and DRM/CC issues.

#### Limited data

- The lack of systematic data collection presents challenges in understanding baselines and trends.
- Limited data availability across a range of areas including past events and impacts, demographic data, weather and climate data and high resolution climate change projections all present challenges to planning and implementation of DRM/CC initiatives.

#### Limited visibility of national DRM investments

- National HFA Reviews have revealed some progress is occurring in terms of national investments in DRM and CCA. Greater transparency is needed to better capture these investments in a systematic approach, rather than the currently ad-hoc and often disorganised manner.

### Recommendations for the region include the following

#### Governance and institutional arrangements

- Continue efforts to progress DRM and CCA through integrated approaches at the national level (through JNAPs or similar initiatives), sub-national and the regional level, through the proposed integrated DRM and CCA framework.
- Regional partners to continue to support PICs in their efforts to develop or maintain appropriate governance and institutional arrangements that support DRM and CCA efforts according to the unique situations of all PICs.
- Regional partners to continue to encourage and support an inclusive approach to national DRM and CCA decision making bodies, with genuine participation from key government ministries, local government representatives, NGOs, civil society and the private sector.

#### Recognise inherent capacity limitations

- Provision of strategic and coordinated in-country engagements from PDRMPN and development partners that address the priority needs is recommended. New initiatives need to acknowledge existing programs and capacity gaps.
- Existence of a single national body that oversees DRM and CC initiatives as a joint coordination mechanism can assist with information sharing, coordination and monitoring and evaluation of initiatives addressing similar issues.
- Recognition of limited human resource capacity and high staff turnover through ongoing succession planning in key agencies (e.g. NDMOs) and capacity building through the use of counterparts / internships / mentoring.

#### Support community-based approaches to DRM and CC

- Support community based approaches to DRM and CC and strengthen the capacity of the Community – based Disaster Risk Management (CBDRM) Working Group to better coordinate CBDRM projects and approaches and to share lessons learned and insight gained from such initiatives across the region.

#### Build on existing mechanisms, past successes and lessons learned

- Learn from the success of online communities (e.g. Pacific Solution Exchange) and draw upon the well-established nature of Pacific Disaster Net (PDN – [www.pacificdisaster.net](http://www.pacificdisaster.net)) with the use of ‘Forums’ to encourage discussions, information sharing, capacity building and support. Alignment with the PDRMPN Working Groups could further establish these groups as key leaders in the region. Having national representatives from various PICs as co-leads of the Working Groups would assist with capacity building and leadership development.
- Encourage and maintain efforts to embrace or revitalise traditional knowledge and coping mechanisms across the region for reasons relating to cultural, environmental, social and economic sustainability.



# CHAPTER 1



## BACKGROUND AND METHODOLOGY





# Regional DRR & DM Framework for Action

Approved by Pacific Leaders in 2005, the “Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005 – 2015: Building the Resilience of Nations and Communities to Disasters” provides the region with a consistent approach to improve disaster risk management practices across all Pacific Island Countries. The Framework, also called the Regional Framework DRR & DM for Action (RFA), contributes to efforts for sustainable development, thereby aligning closely with the regions overarching strategic development policy – the Pacific Plan.

The RFA aspires to building safer, more resilient Pacific island nations and communities to disasters so that the Pacific peoples may achieve sustainable livelihoods and lead free and worthwhile lives.

The RFA has strong links to the Hyogo Framework for Action 2005 - 2015 (HFA) – the global instrument to guide countries to address disaster risk reduction. Being Pacific focused, the RFA provides themes, guiding principles, outcomes and activities specifically tailored to the needs of the region.

The six themes are as follows:

**Theme 1: Governance – Organisational, Institutional, Policy and Decision-Making Frameworks**

**Theme 2: Knowledge, Information, Public Awareness and Education**

**Theme 3: Analysis and Evaluation of Hazards, Vulnerabilities and Elements at Risk**

**Theme 4: Planning for effective Preparedness, Response and Recovery**

**Theme 5: Effective, Integrated and People-Focused Early Warning Systems**

**Theme 6: Reduction of Underlying Risk Factors**

The RFA has been a useful instrument for Pacific countries in identifying and prioritising risks at the national and sectoral level. National Action Plans for Disaster Risk Management (NAPs) and more recently, Joint National Action Plans for Disaster Risk Management and Climate Change (JNAPs) are often rooted in the themes and objectives of the RFA. The PDRMPN has fully supported the RFA and been active in providing support at the national level in aligning national policies and plans with regional instruments such as the RFA.

Given the RFA’s timeframe (2005 - 2015), discussions are taking place regarding a post-2015 regional framework. Recognition of the parallels between disaster risk reduction and climate change adaptation in the Pacific are already taking place at the national level with JNAPs. Discussions regarding the regional approach with respect to an integrated Regional Framework for DRM and CC are currently underway.

## Hyogo Framework for Action

The Hyogo Framework for Action is a global blueprint towards efforts of disaster risk reduction, and was adopted by Pacific governments at the World Conference on Disaster Reduction, in Hyogo, Japan, in 2005.

“The Hyogo Framework offers guiding principles, priorities for action, and practical means for achieving disaster resilience for vulnerable communities.”<sup>2</sup>

The HFA provides priority areas requiring special attention to reduce risk and enhance resilience to disasters. These Priorities for Action are as follows:

**Priority for Action 1: Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation**

**Priority for Action 2: Identify, assess and monitor disaster risks and enhance early warning**

**Priority for Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels**

**Priority for Action 4: Reducing the underlying risk factors**

**Priority for Action 5: Strengthen disaster preparedness for effective response at all levels**

<sup>2</sup> See <http://www.preventionweb.net/english/hyogo/index.php>



Each Priority for Action (PFA) includes Indicators which articulate specific components contributing to progress in disaster risk reduction (see Appendix A for a summary of the Priorities for Action and corresponding Indicators). Additional key questions provide the means to evaluate a country or region's progress against the Indicators. Progress is measured on a scale of 1 – 5 as follows:

LEVEL	GENERIC DESCRIPTION OF LEVEL OF PROGRESS
5: Comprehensive achievement with sustained commitment and capacities at all levels	Comprehensive achievement has been attained, with the commitment and capacities to sustain efforts at all levels.
4: Substantial achievement attained but with recognized limitations in capacities and resources	Substantial achievement has been attained, but with some recognised deficiencies in commitment, financial resources or operational capacities.
3: Institutional commitment attained, but achievements are neither comprehensive nor substantial	There is some institutional commitment and capacities to achieving DRR but progress is not comprehensive or substantial.
2: Some progress, but without systematic policy and/or institutional commitment	Achievements have been made but are incomplete, and while improvements are planned, the commitment and capacities are limited.
1: Minor progress with few signs of forward action in plans or policy	Achievements are minor and there are few signs of planning or forward action to improve the situation.

A bi-annual HFA Review Process at national and regional levels allows for countries and regions to assess how they are progressing according to the Priorities for Action. Key trends, progress and challenges can then be identified allowing for more strategic approach to disaster risk reduction.

## Report Structure

The last Regional Synthesis Report was published in 2009 and this report largely mirrors its structure. Importantly, the Regional Synthesis Report is structured to reflect the parallels between the two frameworks – the RFA at the regional level and the HFA at the global level.

**Chapter 2** provides a report of progress at the regional level, and draws upon indicators specifically targeting the regional scale. Key activities undertaken by disaster risk management partners at the regional scale are captured in this chapter.

**Chapter 3** provides examples of progress of Pacific Island Countries (PICs) at the national level. Progress is captured according to the HFA's Priorities for Action, and includes details for each Indicator. To identify the links between the HFA and the RFA, each Thematic Area of the Regional Framework is listed alongside each Priority For Action to again highlight the parallels in thematic areas between the two frameworks.

**Chapters 2 and 3** both provide ratings of progress according to the HFA's scale of 1-5 (see Section 1.2). Ratings are provided based on evidence which was gathered largely from Pacific Disaster Risk Management Partnership Network (PDRMPN) members (for Chapter 2) and 2012 National HFA Reviews (Chapter 3).

Chapter 4 provides an account of key challenges faced in the implementation of the Thematic Areas of the RFA.

## Methodology

This report draws upon a reporting template discussed and agreed between the SPC and the Secretariat of the UNISDR using regional indicators for Chapter 2 thus allowing for regional progress to be captured and reported on more appropriately than using the HFA's national indicators (which are used for Chapter 3).

This report's information is sourced from various assessment reports of national authorities on disaster risk management and a synthesis of partner agencies' (donors, non-governmental organisations and civil society groups) projects on disaster risk management in the Pacific. Furthermore, national HFA reviews were a rich source of information on the current status of DRM across the region. As noted above, progress at both regional and national levels is measured according to the 5 levels of progress.

This report is intended to complement the national progress reports on the implementation of the HFA which have been prepared by PICs and the reports by members of the PDRMPN.





# CHAPTER 2



## THE CURRENT STATUS OF DISASTER RISK MANAGEMENT INITIATIVES IN THE PACIFIC REGION







# (Sub-)Regional Indicator 1

## A (sub-)regional framework, strategy or action plan for disaster risk reduction exists

**Level of Progress: 4 Substantial achievement attained but with recognised limitations in capacities and resources**

The overarching policy framework for the region, approved by Pacific Leaders in 2005, is the Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005 – 2015: Building the Resilience of Nations and Communities to Disasters (also known as the Madang Framework or more simply, the Regional Framework for Action, or RFA – see SOPAC, 2008). Pacific Leaders expressed the need for improved disaster risk management practices and policies to enhance efforts for sustainable development as a key priority in their Pacific Plan, which is the overarching regional strategic development policy instrument also endorsed in 2005.

Since the adoption of the RFA, a major focus of the Applied Geoscience and Technology Division of the Secretariat of the Pacific Community<sup>3</sup> (herein referred to as SOPAC) has been leading the effort to support countries to adapt the RFA and implement priorities at a national and sectoral level. This has often come in the form of developing National Action Plans for DRM (NAPs) and more recently, Joint National Action Plans (JNAPs) which addresses both disaster and climate change risks. The PDRMPN has, since its inception, supported the development and implementation of DRM NAPs and JNAPs for Pacific island countries. Based on the experiences of a number of Pacific Island Countries, a guide was produced to assist this process<sup>4</sup>. The RFA, which is widely distributed by PDRMPN members, has therefore provided a highly useful overarching framework for addressing risk at the national level.

Progress is now proceeding at the regional level on discussions relating to the post-2015 Framework. Chief Executives of SPC and the Secretariat for the Pacific Regional Environment Programme (SPREP) signed a Letter of Agreement to articulate their commitments in relation to the process of formulating the new strategy commonly referred to as the 'Roadmap'. The Letter of Agreement maps out the collaborative arrangements with respect to developing an integrated regional strategy for Disaster Risk Management and Climate Change by 2015 and reinforces a Memorandum of Understanding which SPC and SPREP had signed in September 2011. The development of the regional strategy has been endorsed by representatives of Pacific island countries and territories (PICTs), and development partners. The process of formulating the regional strategy, the 'Roadmap', was endorsed at a series of meetings in 2011, which included the Pacific Platform for DRM, the Regional Meteorological Service Directors Meeting, SPREP Governing Council, and the SPC Committee of Representatives of Governments and Administrations.

The implementation plan has been developed jointly by SPC, SPREP and the United Nations International Strategy for Disaster Reduction Secretariat (UNISDR) Sub Regional Office for the Pacific as the principal coordinating partners in the 'Roadmap' initiative.

The process to progress the development of the 'Roadmap' remains in discussion and is expected to unfold over the next two years. The lessons from the development and implementation of the RFA at regional and national levels will also be considered in this process.

# (Sub-)Regional Indicator 2

## A multi-sectoral (sub-)regional institutional mechanism exists

**Level of Progress: 4 Substantial achievement attained but with recognised limitations in capacities and resources**

In the Pacific region a number of multi-sectoral (sub-) regional institutional mechanisms exist and over the last three years these mechanisms continued to evolve, including:

The Pacific Platform for Disaster Risk Management is the annual opportunity for Pacific island countries and territories, development partners and donors to share experiences and knowledge in building the resilience of their communities to disasters. The Platform has observed an increasing number of participation in recent years, with over 220 participants in 2011 and 200 participants at the 2012 Platform.

<sup>3</sup> SOPAC was the Pacific Islands Applied Geoscience Commission until January 2010, when it was formally integrated into the Secretariat of the Pacific Community as the Applied Geoscience and Technology Division.

<sup>4</sup> Sikivou, S., Pelesikoti, N., Lal, P., Mendani, R., Jiwajji, M., Timmermans, H. (2009) Guide to developing national action plans, a tool for mainstreaming disaster risk management based on experiences from selected Pacific Island countries 76pp

At the 2009 Platform four Working Groups (WG) were established under the Partnership to support improved coordination and focused response to the needs of PICTs, and specifically to allow for improved partner and donor coordination in the delivery of products, tool and services. These groups include relevant partner organisations and PICT representatives and are formed to address specific DRM needs of PICTs. The four WGs are:

- (1) **Training and Capacity Building** (chaired by SOPAC) with the overall goal to improve the coordination and sharing of information amongst DRM training and capacity building providers in the region.
- (2) **Advocacy and Mainstreaming** (with UNISDR and United Nations Development Programme Pacific Centre (UNDP PC) as co-chairs) with the goal to ensure greater coherence among regional partners in providing support for mainstreaming Disaster Risk Management/ Climate Change Adaptation (DRM/CCA) into national planning and budgetary processes in island member countries through providing advocacy and policy advice on disaster risk reduction (DRR)/CCA mainstreaming.
- (3) **Community – Based Disaster Risk Management (CBDRM)** (currently chaired by Act for Peace and co-chaired by SOPAC) to provide guidance on CBDRM in the region and how it can contribute to the implementation of the Regional Framework for Action.
- (4) **Early Warning** (facilitated by United Nations Educational, Scientific and Cultural Organization (UNESCO) Intergovernmental Oceanographic Commission (IOC) and SOPAC) to provide support at regional, sub regional and national levels in relation to the implementation of the Regional Early Warning Strategy (REWS).

In addition, the PDRMPN has a new framework for Partnership Network collaboration launched in late 2011 which features the establishment of a Coordinating Committee which is intended to bring about greater effectiveness in collaboration between partners in disaster risk management.

The 2<sup>nd</sup> Session Pacific Platform for DRM for 2010 comprised the 16<sup>th</sup> Regional Disaster Managers Meeting: a Professional Development Workshop for Regional Disaster Managers and the 5<sup>th</sup> Annual Meeting of the Pacific Disaster Risk Management Partnership Network. The Professional Development workshop examined the full nature of demands that Regional Disaster Managers experience (and will experience in future) and established their collective perception on the nature of capacity building support they require. The 5<sup>th</sup> Pacific Disaster Risk Management Partnership Network Meeting provided an opportunity for direct exchange and learning on matters of mutual concern to Pacific island countries and territories and also the Caribbean, as well as provide a platform to share experiences of collaboration with various stakeholders on DRM.

The 3<sup>rd</sup> Session of the Pacific Platform for Disaster Risk Management was held in 2011 in New Zealand. The aim of the Platform was to: galvanise the leadership and support of CEOs for mainstreaming disaster risk considerations into national planning and budgetary processes; strengthen the regional DRM partnerships by establishing stronger linkages between representatives of Pacific island countries and territories with partner organisations; examine progress in DRM in the Pacific and globally in the period 2009 – 2011; and endorse a 'roadmap' for the integration of the regional policy frameworks for disaster risk management and climate change adaptation in 2015.

In 2012 the 4<sup>th</sup> Session of the Pacific Platform for Disaster Risk Management and the Pacific Regional Water and Sanitation Consultations (RWSC) brought together disaster and water managers from PICTs, as well as members of the Pacific DRM Partnership Network and the Pacific Water Partnership. For the first time the disaster and water/sanitation communities in the Pacific identified and discussed common issues and strategies at a regional level. The Pacific Island Fire Services Association also held their annual meeting alongside the Platform. The 2012 Platform also provided opportunity for participants to contribute to a renewed regional framework to guide the sustainable management of water resources in the Pacific and the formulation of the integrated regional strategy for DRM and Climate Change 2015 including the Post-2015 Global Framework for Disaster Risk Reduction.

The Pacific Climate Change Round Table, coordinated by SPREP meets biennially and provides the key regional platform for networking, coordination and discussions amongst Pacific island countries and territories, donors, and regional and national organisations on issues, challenges and opportunities for Climate Change Adaptation and Mitigation.

An additional forum is the biennial Meeting of Pacific Regional Meteorological Services Directors which was transformed into the Pacific Meteorological Council in 2011. Trans-boundary risks such as climate change, tsunamis, tropical cyclones, sea level rise and other weather and climate phenomena are on the agenda.

The Forum Leaders established the Council of Regional Organisations of the Pacific (CROP) in 1988. The CROP has become the highest technical advisory committee to member countries in progressing regional cooperation and integration as outlined in the Pacific Plan. Their annual meetings are hosted on a rotational basis by each of the regional organisations.

The Pacific Humanitarian Team (PHT), facilitated by the OCHA Regional Office for the Pacific, meets on an annual basis to discuss issues related to humanitarian response to disasters at both global and country levels.

In November 2011, Pacific Urban Forum was held in Fiji. Organised by United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) Pacific Office, UN Habitat and the Commonwealth Local Government Forum (CLGF), the Pacific Urban Forum was attended by over 60 delegates from Pacific Island countries including Fiji, Kiribati, Papua New Guinea (PNG), Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu



along with development partners (Asian Development Bank, AusAID, New Zealand Aid Programme, the Pacific Institute of Public Policy, Pacific Islands Forum Secretariat, the Pacific Regional Infrastructure Facility, United Nations Development Programme (UNDP) and United Nations Population Fund (UNFPA), NGOs and academia. The Pacific Urban Forum revisited the Pacific Urban Agenda 2 (2007) and moved discussion forward, centring on mobilising action to address the region's urban challenges. Issues and opportunities were discussed including how risk assessments and management are best integrated into urban development, and what would be suitable entry points for mainstreaming risk management and climate change adaptation in urban development.

## (Sub-)Regional Indicator 3

### Institutional mechanism in place to monitor risk reduction status and progress at (sub-)regional level

**Level of Progress: 4 Substantial achievement attained but with recognised limitations in capacities and resources**

A Memorandum of Understanding (MoU) between SPC, UNISDR and World Bank is aimed to strengthen regional collaboration in the Pacific for increased political and financial commitment to DRM/CCA. The MoU was signed in 2010 for a five-year duration. The agreement entitled "Regional Collaboration in Disaster Risk Reduction in the Pacific" was finalised in 2010 and guides regional collaboration amongst the four partners.

In 2010, the PDRMPN participated in the Mid Term Review process for the HFA and the RFA. Since then SOPAC, in collaboration with UNISDR, has supported 2 cycles of national progress reviews for DRM. The first cycle 2009 to 2011, included 6 Pacific island countries namely Cook Islands, Fiji, Marshall Islands, Samoa, Solomon Islands and Vanuatu. This was also an opportunity to review progress of implementation against their respective National Action Plan for DRM. The second cycle was undertaken in 2012 for all 14 PICs to assess NAP and JNAP progress. This review provided an opportunity to identify activities to be included in the EDF10 Disaster Facility Country Implementation Plans.

In 2010, the regional non-government organisation (NGO) the Foundation of the Peoples of the South Pacific International (FSPI) facilitated the Pacific's "Views from the Frontline" initiative - a participatory multi-stakeholder engagement process in three Pacific Island Countries (Vanuatu, Solomon Islands and Fiji) designed to monitor, review and report on critical aspects of "local governance" considered essential to building disaster resilient communities (see FSPI, 2011). Consultations were conducted with representatives from a local government as well as communities at risk. The global report can be accessed at <http://www.globalnetwork-dr.org>

In addition, the (sub-) regional institutional mechanisms listed under the Regional Core Indicator 2 further provide the opportunity to monitor progress in the implementation of Disaster Risk Management and Climate Change initiatives in the Pacific region.

## (Sub-)Regional Indicator 4

### (Sub-)regional training /capacity building programmes / institutions exist to support capacity building on DRR at national / regional levels

**Level of Progress: 4 - Substantial achievement attained but with recognised limitations in capacities and resources**

SOPAC, working in close collaboration with TAF/OFDA, New Zealand Ministry of Civil Defence and Emergency Management (NZ MCDEM), OCHA and other partners under the auspices of the Training and Capacity Building Working Group of the PDRMPN, are collaborating to develop a DRM Competency Framework which will provide a more realistic indication of the types of skills and competencies which need to be addressed in training programmes at regional, national and sub national levels within the Pacific. Such a framework will help countries to define a more strategic approach to DRM capacity building.

SOPAC continued its commitment to improving DRM knowledge and skill levels among Pacific Islanders by maintaining its relationship with The Asia Foundation (TAF) and United States Agency for International Development (USAID), Office of U.S. Foreign Disaster Assistance (OFDA) through the Pacific Disaster Risk Management

Programme (PDRMP). A number of training courses have been conducted across the region, including Introduction to Disaster Management (IDM), Initial Damage Assessment (IDA), Emergency Operations Centres (EOC), Exercise Management (ExMan) and Training for Instructors (TFI). An important addition to the suite of courses, is a new Disaster Risk Reduction (DRR) course which was piloted in June 2012 and delivered for the first time at the national level in Samoa in July 2012.

The PDRMP has provided training in Initial Damage Assessment in Fiji, Samoa and the Marshall Islands. PDRMP is working with NDMOs to customise forms for Initial Damage Assessment in each country. In Fiji, PDRMP has provided support in the delivery of IDA training to community leaders.

The Asia Foundation and SOPAC have also collaborated with the Fiji National University (FNU) through the College of Medicine, Nursing and Health Sciences to address the region's need for professional qualifications in disaster risk management. A new post-graduate certificate programme in Disaster Risk Management was offered from Semester 2, 2012. The course is delivered online and is available to students throughout the region. SOPAC is currently in discussions with FNU regarding the recognition of prior learning for those who have completed professional training courses under PDRMP.

As of 2010, USP has a Post-Graduate Diploma and a Masters programme in Climate Change. The courses included in both programmes are drawn from existing disciplines and incorporate DRR & DM concepts already developed for the Pacific region. In 2011, with technical support from SOPAC and IFRC, USP developed a new Disaster Management unit as part of this academic program. The Disaster Risk Management unit was first offered to students in late 2011.

The Asia Foundation and SOPAC continued to provide support to Fiji's Public Service Commission and National Disaster Management Office who have now taken ownership of running both the Introduction to Disaster Management and Initial Damage Assessment training for Fiji's Public Service.

The Solomon Islands College of Higher Education (SICHE) continued to receive support for the delivery of IDM training to nursing students. In 2012 this partnership between SICHE, Solomon Islands NDMO, TAF and SOPAC expanded to include the adaptation of training materials to abridge the IDM and IDA training into a four day course. The course was delivered to 70 nursing students in April 2012 and in August and September the course was delivered through a further two colleges of nursing in Atoifi, Malaita Province and Munda, Western Province.

Support has also been provided by SOPAC and TAF/OFDA in collaboration with the Australian Federal Police, for disaster risk management training to Police and other key response personnel for Samoa, Niue, Cook Islands, Vanuatu, Nauru and the Federated States of Micronesia.

Following the tsunami affecting Samoa and Tonga in 2009, a Disaster Relief Fund was established at New Zealand's Massey University to assist Pacific staff members who had been personally affected. Beginning in 2011, the Pacific Disaster Management Research Programme offers annual scholarships Pacific students undertaking studies in programmes related to disaster management. The Pacific Disaster Management Research Programme operates out of the Joint Centre for Disaster Research, which is a joint venture between Massey University and Institute of Geological and Nuclear Sciences, New Zealand (GNS), and located within the School of Psychology based at the Wellington Campus.

Over the course of 2009 and 2010 an Australian Tropical Cyclone Warnings Specialist installed tropical cyclone forecasting software in various Pacific island meteorological services (Fiji, Samoa, Solomon Islands, Tonga and Vanuatu). In-country training was also provided for Pacific-based severe weather forecasters in the application of TC Software Module.

Over the course of 2010 and 2011, UNESCO/IOC and SOPAC provided support to the Solomon Islands in collaboration with BOM, to facilitate consultations and the development of Standard Operating Procedures (SOPs) for tsunami response. The development of SOPs was followed by a table-top exercise and subsequent revision of the SOPs based on the outcomes of the exercise. Support has also been provided to Tonga, Fiji and Vanuatu. In-country training to strengthen tsunami response is planned in the following Pacific Island countries: Fiji, Samoa, Solomon Islands, Tonga and Vanuatu.

As mentioned earlier, and as part of a regional initiative implemented jointly by the Australian BOM and SOPAC, 14 PICs have received their respective reports for Tsunami National Capacity Assessment: Tsunami Warning and Mitigation Systems. The reports provide an assessment of the capacity of island member countries to receive, communicate, prepare for, and respond to tsunami warnings. It identified requirements for further capacity building programmes and assists in directing funds from various potential sources to address these requirements. These reports are proving to be a useful resource to guide external funding support. In late July 2011 the NZ MCDEM used the reports to guide their tsunami preparedness support efforts in the Cook Islands, Niue, Samoa, Tokelau and Tonga.

NZAID provides funding support to NZ MCDEM to work closely with National Disaster Management Offices in Samoa, Cook Islands, Tokelau, Tonga and Niue to strengthen their capacity and ability to prepare for and respond to natural disasters. This includes in-country visits and possible deployment to affected countries in times of disaster. Additionally, NZ MCDEM provides strategic and practical support to the five countries that will make a tangible difference in their ability to prepare for and respond effectively to tsunami threats. This includes the installation of early warning equipment as well as community awareness initiatives.



SOPAC, Australasian Fire Authority Council (AFAC), TAF and OCHA are collaborating to strengthen national emergency/disaster preparedness and response efforts between NDMOs, and national fire and emergency services under the umbrella of the Pacific Islands Fire Services Association (PIFSA).

In 2011, OCHA undertook a training needs analysis specifically examining the humanitarian system in the Pacific, and the system's capacity to fulfil its responsibilities under the Humanitarian Reform. An advisory panel consists of IFRC, World Health Organization (WHO), Adventist Development and Relief Agency (ADRA), TAF/OFDA, Australian Agency for International Development (AusAID), New Zealand Aid Programme, United Nations High Commissioner for Refugees (UNHCR) and the NDMOs of Solomon Islands and Samoa has been formed to address the outcomes of the analysis. The report, which incorporates comments from partners across the region, was published online in September 2012.

SOPAC, in partnership with ECLAC, the World Bank, UNISDR, UNESCAP and IUCN-Oceania introduced the Damage and Loss Assessment (DALA) methodology to 8 Pacific island countries. In February 2012, a group from SOPAC and SPREP attended training for DALA and Post Disaster Needs Assessment trainers, hosted by the World Bank and UNDG, with a view to adapting the training for delivery in the Pacific in 2013.

In August 2011, the United States Centre for Excellence in Disaster Management and Humanitarian Assistance hosted a Disaster Management Workshop and Table-Top exercise in Fiji. The workshop and exercise were designed to support the Government of Fiji's tsunami preparedness activities by providing an opportunity to test current plans and identify opportunities for improvement.

In 2009 the Pacific Church Leaders Meeting approved the Pacific Council of Churches (PCC) managed Climate Impact and Disaster Risk Assessment Project (CIDRA). In 2010 PCC in collaboration with Brot fuer die Welt started the implementation of the CIDRA project. The overall goal was to strengthen the capacities of member churches for the implementation of the project in Fiji, Solomon Islands, Vanuatu, Kiribati and Tuvalu. PCC is up scaled the project in 2011/ 2012.

UNDP, with funds from AusAID is implementing the Pacific Risk Resilience Programme which will focus on strengthening governance mechanisms for DRM and CCA at the sub-national and local levels. The goal of the programme is to strengthen the resilience of Pacific island communities to disasters and climate change related risk.

## (Sub-)Regional Indicator 5

### Institutional mechanism and procedures are in place to carry out trans-boundary risk assessments

**Level of Progress: 3 Institutional commitment attained, but achievements are neither comprehensive nor substantial**

A number of mechanisms and procedures are in place to facilitate trans-boundary risk assessments in the Pacific, including the initiatives reported below:

The Pacific Risk Information System contains the different components of Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) which includes an inventory of buildings and major infrastructure for 15 countries. Approximately 80,000 buildings and major infrastructure (such as roads, bridges, airports and power generation facilities) were inspected during field visits in 11 of the countries providing ground-truthing data on characteristics such as structural system, construction material, occupancy, number of storeys, roof shape and material type, and wall material type. The resulting building and infrastructure database is a comprehensive resource for characterising the building environment in these nations. Lastly, a property exposure database is derived from the building and infrastructure database in combination with expert research on property value and reconstruction costs.

The South Pacific Sea Level and Climate Monitoring Project (SPSLCMP) was developed as an Australian response to concerns raised by Pacific Island countries about the potential impacts of human-induced global warming (the "Greenhouse Effect") on climate and sea levels in the Pacific.

SPC Divisions, such as the Land Resource and Public Health have conducted assessments in PICTs to measure the risk of increased outbreaks of communicable and animal disease in the face of climate change.

SOPAC continues to provide post-disaster technical assistance to countries. This includes the coordination/conduct of scientific assessment of hazard impact as well as facilitating the sharing of skills to allow for collaboration between National Disaster Management Offices for the purpose of more effective and efficient disaster response coordination.



# (Sub-)Regional Indicator 6

## (Sub-)regional early warning systems exist

**Level of Progress: 3 Institutional commitment attained, but achievements are neither comprehensive nor substantial**

The implementation of strategies to develop effective Early Warning Systems (EWS) is being pursued through a number of mechanisms such as the development of NAPs and JNAPs for PICs which often have specific goals aimed at strengthening EWS. For example, Cook Islands addresses early warning under Strategic Area 3 (Disaster Management) of its JNAP, while Tuvalu addresses early warnings in its Goal 6 (Planning for Effective Disaster Preparedness, Response and Recovery) of its National Strategic Action Plan for Climate Change and Disaster Risk Management. See Government of the Cook Islands (2012) and Government of Tuvalu (2012) for details.

The EU funded Disaster Risk Reduction project implemented by SOPAC, is focused on strengthening early warning communications in Papua New Guinea and the Federated States of Micronesia. Support has been provided to the Port Moresby Geophysical Observatory with installation of new seismic stations, the National Weather Service with automatic weather stations and data logging rain gauges including VHF and HF radios targeting all Provincial Disaster Committees in Papua New Guinea. Similar assistance has been provided to the Federated States of Micronesia with VHF and HF radios installed in the outer islands together with Rural Internet Communication (RICs) systems. The capacity of Governments to better respond to hazards has been strengthened with the construction of Emergency Operation Centers in Solomon Islands, Palau and the Federated States of Micronesia.

Japan International Cooperation Agency (JICA) has upgraded the Seismic Observation Networks in Fiji and Tonga and developed the capacity of staff in each agency to analyse seismic observation data. The South Pacific Sea Level and Climate Monitoring Project currently operates and maintains 12 monitoring sites in the region. These sea level data observations are provided to the Pacific Tsunami Warning Centre (PTWC) in Hawaii.

The Nadi Tropical Cyclone Centre was officially designated by World Meteorological Organisation (WMO) in June 1995 as a Regional Specialised Meteorological Centre (RSMC) with activity specialisation in tropical cyclones task to provide “first-level” information in tropical cyclones (i.e. basic information covering the tropical cyclones’ presence and forecast position, movement and intensity) in the South West Pacific Ocean. It operates 24 hours a day, all the year round providing an essential weather service to a large area of the South West Pacific region. RSMC Nadi is responsible for providing weather forecasting and warning services for Fiji, Cook Islands, Kiribati, Nauru, Niue, Tokelau, Tonga, Tuvalu, Wallis and Futuna and special advisory services for Samoa and Vanuatu. It also functions as the Meteorological Watch Office for the Nadi Flight Information Region (FIR).

The Melanesian Volcanological Network (MVN) was established by Papua New Guinea, Vanuatu and Solomon Islands to provide a mechanism for the sharing of equipment, resources and personnel to support preparedness and observation activities. Since its establishment in 2008 a number of exchanges have already taken place with the assistance of various partners as well as ongoing collaboration with countries such as New Caledonia. The MVN countries continue to advocate for sustained funding to contribute to mitigating volcanological risks in the Pacific.

Tsunami National Capacity Assessments, conducted in 2008–2009 by the Australian Bureau of Meteorology (BOM) and SOPAC, of the ability of the PICs to receive, communicate and effectively respond to tsunami warnings have been conducted for 14 PICs: Tonga, Solomon Islands, Fiji, Samoa, Vanuatu, Cook Islands, Kiribati, Papua New Guinea (PNG), Nauru, Niue, Marshall Islands, Tuvalu, Palau and Federated States of Micronesia (see SOPAC, 2010). All 14 PICs have received their reports. These reports have already been of use, as the New Zealand (NZ) Ministry of Civil Defence and Emergency Management used them as a guide for their tsunami preparedness support efforts in the Cook Islands, Samoa, Tonga and Niue. Progressing the understanding of tsunami risk is the focus of Geoscience Australia and SOPAC (with AusAID funds), which is drawing upon remote sensing (Light Detection And Ranging - LiDAR), bathymetric and topographic data to model tsunami risk in Tonga.

Flood warning systems have been installed in Rewa, Navua and Ba rivers in Fiji. The Cook Islands has developed an early warning information system known as the Frontline Emergency Response Network (FERN).

A community-based and people-centred EWS approach has been incorporated by FSPI in their project: “Increasing Community Resilience to Natural Disasters through Use of Traditional Coping Strategies” in Tuvalu and Samoa. The strategies FSPI have employed are land use practices; strengthening of homes using traditional knotting; people-centred early warning system; food preservation techniques; water use practices in dry areas; and community-based DRR and DRM plans/safer village plans.

UNESCO Intergovernmental Oceanographic Commission (IOC), through its regional office in Apia, Samoa established a position of National Programme Officer for Tsunami Early Warning and DRR based at SOPAC in November 2010. The incumbent is providing technical advice and support to PICTs to strengthen their capacities in tsunami early warning and response systems and as well general advice in DRR initiatives. This collaboration also provides countries with a closer link to initiatives by UNESCO/IOC such as the Pacific Wave Exercise. Cook Islands,



Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu participated in the Exercise which proved an effective tool for countries to evaluate their effectiveness at receiving and responding to tsunami warnings.

New Zealand's National Institute of Water and Atmospheric Research (NIWA) is contracted by the Government of Samoa to develop and install the Climate Early Warning System (CLEWS – see <http://www.niwa.co.nz/publications/wa/water-atmosphere-2-february-2011/early-warning-for-samoa>). The current phase of the CLEWS project is expected to be completed in 2013. The project is funded by the Global Environmental Facility (GEF) and administered by the UNDP. The system will provide more timely and targeted climate information, and ultimately help local people mitigate the effects of climate variation and change.

Under SPC's Regional Initiative: Pacific Public Health Surveillance Network a public health early warning system for the Pacific was established.

## (Sub-)Regional Indicator 7

### (Sub-)regional information and knowledge sharing mechanism available

**Level of Progress: 4 Substantial achievement attained but with recognised limitations in capacities and resources**

There is a wide range of information and knowledge sharing mechanisms available in the Pacific, including the following:

- Pacific Disaster Net (PDN) is a comprehensive web portal and database system, developed for DRM stakeholders in the Pacific. Jointly launched in 2008 and continually maintained by SOPAC, IFRC, UNDP PC, UNISDR and United Nations Office for the Coordination of Humanitarian Affairs (OCHA), PDN is a significant and growing information resource for disaster risk management partners working in the Pacific.
- SPC maintains various networks for information and knowledge sharing, including: the Pacific DRM Partnership Network, Pacific Public Health Surveillance Network, PacNet, LabNet, EpiNet, PICNet.
- The SPC Geonetwork is a catalogue of the bathymetric datasets mapped by the SOPAC and those provided through agreements with countries and research institutes.
- SPREP is facilitating various networks, such as the Pacific Invasive Learning Network.
- Pacific's Climate Change and Development Community (CCDC), called Pacific Solution Exchange and initiated by UNDP, hold online discussions surrounding issues such as mainstreaming DRR/CCA into development practice, water and food security issues, gender, youth, community-based DRR/CCA and many others.
- The DRR Project Portal (DRR PP) for Asia and the Pacific has been developed under the project 'Regional Stocktaking and Mapping of DRR interventions in Asia and the Pacific'. It is a stocktake of DRR and CCA initiatives implemented in the Pacific and Asia.
- Developed and maintained by OCHA, the Pacific Humanitarian Team (PHT) portal is another online platform hosting information on disaster preparedness, coordination and response for the region.
- DesInventar: An online disaster inventory supporting the systematic collection, documentation and analysis of data about losses and damage caused by disasters.

The Pacific Platform for Disaster Risk Management provides a forum for exchange and sharing of experiences within the Pacific and other regions, in relation to policy and operational aspects of disaster risk reduction, disaster management and the ever important link to climate change adaptation. The Platform has hosted representatives from the Caribbean and Indian Ocean.

United Nations Office for Outer Space Affairs (UNOOSA) organised, together with SOPAC and UNDP, a regional workshop in 2008 focusing on access and use of space-based info for DRM. Technical advisory missions have followed in Samoa and Fiji (2010) and Tonga.

The World Bank released a policy note in 2012 entitled "Acting today for Tomorrow: a Policy and Practice Note for Climate and Disaster Resilient Development in the Pacific Islands Region" (World Bank, 2012). The policy note provides further evidence and support for the push to further integrate DRR and CCA across the Pacific region, and practical recommendations on how to do so based on experience.

In 2011, USP Pacific Centre for Environment and Sustainable Development (PACE SD) compiled a publication which documents good practices of community-based adaptation in the Pacific. This report describes many of the current initiatives which also relate to DRR.

# (Sub-)Regional Indicator 8

## (Sub-) regional research institutions for disaster risk reduction exist

**Level of Progress: 3 Institutional commitment attained, but achievements are neither comprehensive nor substantial**

A number of regional research programmes and projects have been conducted which guide disaster risk reduction and climate change interventions.

The Pacific Climate Change Science Program (PCCSP) is funded by the Australian Government and sees the Bureau of Meteorology and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) partnering with 15 PICs and regional stakeholders to further progress the understanding of past and future climate trends. The PCCSP works across 5 key areas: 1. Past and current climate trends; 2. Understanding the climate; 3. Climate change projections; 4. Oceans and sea-level rise and 5. Engagement and capacity building. Given the Pacific's vulnerability to climate related disaster risks, this applied research programme also addresses risk reduction by furthering the understanding of current and future climate-related hazards and climate change impacts (Australian Bureau of Meteorology and CSIRO, 2011).

The Pacific Catastrophe Risk Assessment and Financing Initiative provides 15 countries with disaster risk modelling and assessment tools to better understand, model, and assess each country's exposure to natural disasters. It builds on close collaborations between the Secretariat of the Pacific Community through its Applied Geoscience and Technology Division, World Bank (WB) and Asian Development Bank (ADB), with technical inputs from GNS Science, Geoscience Australia, and AIR Worldwide. PCRAFI aims to engage in a dialogue with countries on integrated risk reduction solutions to the impacts of natural hazards and climate change.

The Pacific – Australia Climate Change Science and Adaptation Planning Program (PACCSAP) supports Pacific Island countries to develop capacity to monitor and adapt to their changing natural environment and enhance resilience to the impacts of climate change. A range of activities integrate climate science and risk information in development planning. PACCSAP has delivered a number of regionally significant activities which showcase the relevance of applying accurate climate risk information in national planning decisions in partnership with regional agencies. PACCSAP in collaboration with the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) work together to improve regional risk information on future tropical cyclone wind hazard changes under climate change.

UNISDR, in collaboration with SOPAC and with funding support from the World Bank Global Facility for Disaster Reduction and Recovery (GFDRR), completed a "Poverty Disaster Interface Study for the Pacific" (see Lal et al., 2009) provides an analysis of the existing disaster risk management and poverty reduction strategies in Fiji with key recommendations for Fiji and other Pacific Island countries. It was launched and disseminated at the Pacific DRM Platform meeting in May 2009 in Nadi, complementing research on this topic from other regions for the Global Assessment Report on Disaster Reduction 2009.

UNISDR and UNDP undertook an institutional and policy analysis on Disaster Risk Reduction and Climate Change Adaptation in the Pacific, a GFDRR funded initiative which was released in 2012 (see UNISDR and UNDP, 2012). This comprehensive report provides details on the similarities and differences of DRR and CCA and analyses the degree of integration in the region in terms of policy and the institutional environment in seven PICs (Cook Islands, Federated States of Micronesia, Fiji, Palau, Samoa, Tonga and Vanuatu). The report also makes recommendations for regional and national stakeholders to strengthen the application of DRR in climate change adaptation in the Pacific. One of the key findings of the report was that "effective integration of CCA and DRM is based on the knowledge and commitment of individuals at the national level and on the ability of the responsible government agencies to work together closely" (UNISDR and UNDP, 2012: iii).

UNDP PC is coordinating the South-South project in the Pacific with support from the UNDP Caribbean Risk Management Initiative (CRMI) and UNDP's sub-regional Centre in Trinidad and Tobago. There are a number of regional partners involved. In the Caribbean these are: Caribbean Disaster and Emergency Management Agency (CDEMA), CARICOM Climate Change Centre (CCCC) and University of the West Indies (UWI) and in the Pacific: SOPAC, SPREP other divisions of the SPC and USP. The South-South project provides a common platform for the regions to share their experiences with a range of exchanges between the regions. These include annual regional meetings and study tours in each region to exchange DRM operational practices and experiences.

The GFDRR carried out a stocktake of current and planned disaster risk reduction and climate change adaptation projects and activities across the Pacific at regional and national level. The stocktake was finalised in 2010 with country assessment reports for the six targeted countries (Fiji, Marshall Islands, Solomon Islands, Papua New Guinea, Vanuatu and Kiribati – see World Bank et. al.). The World Bank has confirmed support for Papua New Guinea, Solomon Islands, Marshall Islands and Vanuatu and operational plans to bring these into effect are being finalised.





In 2009-2010, researchers from the University of New South Wales (UNSW) undertook a study investigating approaches that successfully integrate disaster risk reduction and climate change adaptation at the community level in the Pacific. The study found that often opposing governance and legislative frameworks, terminology and funding mechanisms provided barriers to the integration of DRR and CCA. Research outcomes recommended focusing on the overall outcome of risk reduction at the community level, and viewing this as part of the development process (Gero et al, 2010).

The University of Papua New Guinea Centre for Disaster Reduction was established for both public awareness and research in the wake of the 1998 Aitape tsunami. The Centre promotes teaching and research concerning disasters.

## (Sub-)Regional Indicator 9

### DRR is an integral objective of (sub-)regional policies and plans

**Level of Progress: 4 Substantial achievement attained but with recognised limitations in capacities and resources**

The implementation of the Pacific climate change and DRM frameworks are being coordinated by SPREP and SPC through the SOPAC. This includes the development of JNAPs that address climate and disaster risks and implementation supported by DRM and CC partners. This process has also included the review of DRM and CC governance and institutional arrangements in PICs to integrate DRR in national legislation, regulation, policies and programmes.

The UNISDR Sub-Regional Office for the Pacific has undertaken an analysis of the level of mainstreaming DRM into National Sustainable Development Plans of PICs over the period 1996 - 2009. Study analysis showed that 50% (7/14) of the plans address DRM in some capacity. It also showed that there is an opportunity to integrate DRR / CCA mainstreaming efforts in upcoming reviews of older strategies as 60% (3/5) of the strategies developed since 2008 included reference to the CCA issue.

The European Union (EU) has long supported disaster risk reduction initiatives in the region. Through various funding modalities such as the ACP-EU Natural Disaster Facility, the European Development Fund (EDF) 9 B and C Envelope projects and other funding mechanisms, EU is helping to ensure that disaster risk management in general is a major priority focus for PICTs. Under the EDF10 Natural Disaster Facility for Pacific ACP States which include Timor Leste this support will continue. EU support includes

- Implementation of the EU-funded EDF 9 B Envelope Multi-Country Project which started in 2008 has provided support to eight PICs. Two areas were identified by the Project: the provision of safe drinking water and the establishment of emergency communications and/or emergency operations centres for the targeted countries. The project will continue until June 2013.
- Similarly the EU-funded EDF 9 C Envelope Project which commenced in December 2008 aims to reduce vulnerabilities of Pacific Overseas Countries and Territories French Polynesia, New Caledonia, Pitcairn Island and Wallis and Futuna. Assistance to these territories under the project covers DRM issues such as water supply and water safety planning, inundation mapping and modelling and others.
- The Pacific Hydrological Cycle Observing System – Pacific HYCOS Project (<http://www.pacific-hycos.org/>) is a regional project funded by EU for 14 Pacific island countries which ended in December 2010. It was an initiative to improve management and protection of Pacific Island Countries' freshwater resources, through the provision of appropriate water resource management systems leading to an improved understanding of water resource management. All the 14 Pacific Island Countries received the equipment, instrumentation, site installations and training to enable monitoring and assessment of their pilot river basins and aquifers. Of relevance to this report are: a) flood forecasting capability; and b) drought forecasting.
- Integrated Water Resources Management – national governance programme
  - a. The flood forecasting component involves the design of a real time data acquisition and transmission system for rainfall and river level data that is appropriate for small PICs. HYCOS worked with the Government of Fiji to strengthen the Rewa Flood Forecasting and Warning System (FFWS) and provided some support to the EDF 8-funded Navua FFWS.
  - b. Under the EU EDF 9 B Envelope project, SOPAC with funding and coordination support from national water authorities is working in 4 PICs (Tonga, Tuvalu, Marshall Islands and Nauru) in order to improve access to safe drinking water. This is achieved by (1) improving storage capacity, sanitation and urban and rural water supply; (2) monitoring, training and awareness programmes; and (3) provision of rainwater harvesting system.
- A water quality monitoring component was established in Nauru which looks at sampling potable water provided to the community by the Nauru utilities authority at various points along the supply line, to identify

areas at most risk and any seasonal impacts associated with water quality. Sampling is undertaken monthly and protocols exist for reporting where E Coli results are considered high. Sampling of selected rain tanks and community tanks were included in the water quality monitoring programme.

- A community focused brochure was developed in 2009 to assist with informing the community of El Niño weather patterns in the Marshall Islands, how it would affect them and what they need to do to prepare for predicted water shortages and reduce water consumption.
- In Tonga, flow meters were fitted to all the abstraction bores in the Matakī'eua well field and in 2010, HYCOS assisted in the data analysis and compilation of groundwater data and information.
- For Tuvalu, support was provided with the Rain Water Harvest (RWH) Geographical Information System (GIS) database in 2009 to assist with data management issues, ground truthing and additional training where there was a change in GIS operators. A brochure was prepared to assist community with understanding of potential impact of El Niño events and identifying rainwater harvesting maintenance practices and preparations to assist the community with drought management options.

The Regional Water and Sanitation Consultation (RWSC) was held in Noumea, New Caledonia alongside the 4th Session of the Pacific Platform for Disaster Risk Management. As part of the process to update the Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP) the Regional Water and Sanitation Consultations strategically reaffirmed and repositioned the regional water and sanitation sector and focus of work over the period 2013 will be to identify and secure resourcing to implement the steps with a view to being able to table the final outcome at the Forum Leaders meeting in 2014. It provided an opportunity for the sector to commence work towards articulating sentiments against the proposed integrated regional strategy for DRM and CC. The expanded SPC/GIZ Coping with Climate Change in the Pacific Island Region (CCCPIR) Programme aims to strengthen the capacities of Pacific member countries and regional organisations to cope with the impacts of climate change. The programme commenced in 2009 working with Fiji, Tonga and Vanuatu. In addition to continued work with Fiji, Tonga and Vanuatu, it has expanded to another nine Pacific Island Countries, namely the Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, PNG, Samoa, Solomon Islands and Tuvalu. The programme duration has been extended until 2015.

Council of Regional Organisations of the Pacific (CROP) executives established the CROP Executives Subcommittee on Climate Change (CES-CCC) in 2010. This committee is jointly chaired by PIFS and SPREP. Its objective is to advance close collaboration, teamwork and coordination among the climate change support activities of CROP agencies, all of which have a role to play in addressing climate change within their respective areas of work. The establishment of the Working Arm of the CES-CCC (WACC) in 2011 has facilitated increased interaction among the CROP focal points, especially the exchange of experience and information related to climate change housed in the different CROP agencies. A key objective of CROP agencies is, through the WACC, to increase the level of coordination and integration of service delivery to member PICTs in the area of climate change.

The Land Resource Division of the SPC is further integrating DRR and CCA in existing programmes to ensure sustainable agriculture and forestry sectors. Emphasis is placed on awareness and capacity building in the areas of Sustainable Agriculture Development and Sustainable Forestry Development and related DRR and CCA aspects for the rural sector's production sustainability.

## (Sub-)Regional Indicator 10

(Sub-)regional infrastructure projects (viz. cross border transport network, dams etc) have processes to assess disaster risk impacts

**Level of Progress: 3 Institutional commitment attained, but achievements are neither comprehensive nor substantial**

The Pacific Risk Information System contains the different components of PCRAFI which includes an inventory of buildings and major infrastructure for 15 Pacific island countries. Approximately 80,000 buildings and major infrastructure (such as roads, bridges, airports and power generation facilities) were inspected during field visits in 11 of the countries providing ground-truthing data on characteristics such as structural system, construction material, occupancy, number of stories, roof shape and material type, and wall material type. In addition to the digitised and field verified features that capture individual structures, remote sensing techniques were applied to derive aggregate estimates for the quantity and spatial distribution of structures not detected by other methods. The resulting building and infrastructure database is a comprehensive resource for characterizing the building environment in these nations. Lastly, a property exposure database is derived from the building and infrastructure database in combination with expert research on property value and reconstruction costs.



SOPAC through its technical programmes has helped inform natural resource management and development and natural hazard risk reduction in Pacific island countries through the conduct of cost benefit analyses. These include:

- Preliminary Overview of Desalination in Pacific Island Countries (Freshwater and Talagi, 2011).
- Economic analysis of climate change adaptation measures in the Pacific with respect to water security (Gerber et al., 2011).

A number of countries have developed engineering standards and building codes such as Fiji, Vanuatu and Papua New Guinea – with Niue in the process of updating building codes as of mid-2012. The issue in the Pacific continues to be compliance with building standards and codes. To assist in this area the South Pacific Engineers Association have pledged to assist in encouraging countries to strengthen the application and enforcement of engineering standards and building codes to help reduce disaster risk. The Fiji Institute of Engineers is supported Fiji's efforts to upgrade the national building code in 2011.

The Pacific Region Infrastructure Facility (PRIF) is a multi-partner infrastructure coordination and financing mechanism. PRIF provides a framework for better engagement of countries and development partners to ensure more effective use of available funding and delivering of better infrastructure services. PRIF builds on successful activities in the Pacific, helps address gaps in existing infrastructure, and is developing innovative approaches to the problems of delivering infrastructure services in the Pacific.

## (Sub-)Regional Indicator 11

### (Sub-)regional response mechanism in place to address disaster preparedness, emergency relief and rehabilitation issues across borders

#### Level of Progress: 4 - Substantial achievement attained but with recognised limitations in capacities and resources

The Pacific Humanitarian Team (PHT) was established by OCHA in 2009, following the UN Cluster approach to improve the quality and consistency of international humanitarian response to disasters at both global and country levels. At the global level, the aim of the cluster approach is to strengthen system-wide preparedness and technical capacity to respond to humanitarian emergencies by ensuring predictable leadership and accountability. At the country level, the aim is to strengthen humanitarian response by fostering high standards of predictability, accountability and partnership in all sectors or areas of activity.

In 2009, post-disaster technical assessments and support have been provided to the government of the Solomon Islands in relation to flooding in Guadalcanal (Solomon Islands – see Bonte-Graptin, 2009) and Nadi and Ba (Fiji) and to Samoa and Tonga in relation to the earthquake and tsunami of September 2009. In relation to the flood assessments in Fiji, SOPAC conducted an economic impact assessment of flood damage in 2 sample areas in Nadi (see Holland, 2009) and Ba (see Ambroz, 2009) and placed that losses to small business and households at approximately F\$330 million. This figure added another dimension of understanding to the overall impact of the flood event given that the official damage estimates provided by the Fiji Government was approximated at F\$113 million. In terms of hazard assessment, the flood event in Fiji highlighted serious shortcomings of some key technical agencies in terms of equipment and manpower to be able to provide accurate baseline data and information to inform planners in relation to flood mitigation measures as well as flood forecasting and early warning systems.

OCHA coordinates the PHT and facilitates the operational clusters (WASH, Health and Nutrition, Emergency Shelter, Logistics, Emergency Education, Early Recovery, Protection). The PHT has been activated during events in 2009 and 2010 in which coordination focused around the response phase i.e. WASH, Health and Protection towards the Fiji and Solomon Islands floods, Tonga tsunami, Tropical Cyclone (TC) Mick, Solomon Islands Earthquake and Tsunami, TC Tomas and TC Vania.

In June 2010, the PHT identified the need for an over-arching regional inter-agency contingency plan including SOPs to strengthen local authorities' and humanitarian agencies' capacity to support affected populations in times of disaster.

The Pacific Enhanced Humanitarian Response Initiative (PEHRI) which was Australia's regional disaster risk reduction initiative over 3 years up to December 2011 comprised of 7 projects implemented across 14 Pacific Island Countries (PICs). Three out of seven projects includes community-based DRM programmes:

- Pacific Community Focused Integrated Disaster Risk Reduction – implemented by the National Council of Churches Australia /Act for Peace Fiji, Solomon Islands, Tonga and Vanuatu

- Strengthening Humanitarian Emergency Response Management for Children and Women in the Pacific – implemented by the United Nations Children's Fund (UNICEF) Fiji, Kiribati, Samoa, Solomon Islands and Vanuatu
- Improving Community Based Emergency Preparedness in Vanuatu – implemented by CARE Australia

SOPAC has a mechanism that allows Directors of National Disaster Management Offices to support each other in the event of a disaster and provide direct technical support to countries. In 2009 during the Samoa tsunami response, SOPAC deployed staff to support emergency operations, information management, undertake post-disaster technical assessments and facilitate arrangements for the international team of tsunami scientists.

OCHA facilitates the United Nations Disaster Assessment Coordination and has trained and maintained a pool of Pacific Island nationals to deploy when needed. United Nations Disaster Assessment and Coordination (UNDAC) deployed teams to Samoa in 2009 and Cook Islands in 2010.

IFRC also supports national Red Cross societies across the region in disaster preparedness and response.

## (Sub-)Regional Indicator 12

### (Sub-)regional contingency mechanism exists to support countries in post-disaster recovery

**Level of Progress: 3 Institutional commitment attained, but achievements are neither comprehensive nor substantial**

National agencies often lack the capacity to undertake a comprehensive impact assessment following a large scale event. In this light, SOPAC and UNISDR with the support of UNESCAP and the World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR) are developing a Damage and Loss Assessment methodology and process for the Pacific region. SOPAC, upon request and subject to the official declaration of a major disaster event provides technical support to PICs during an event. The Pacific UNDAC Team comprising Pacific island nationals and partners, is trained and equipped to support countries during the response effort.

The Pacific Catastrophe Risk Assessment and Financing Initiative aims to provide further technical assistance to countries to refine the disaster risk assessment tools and the applications of these tools. The initiative provides PICs with tools to help assess the economic and fiscal impact of disasters and in turn recovery.

The current support to countries by DRM and CC partners through development programmes provides resources to strengthen the recovery effort.

## (Sub-)Regional Indicator 13

### (Sub-)regional catastrophe risk pooling<sup>5</sup> facility available

**Level of Progress: 2 Some progress, but without systematic policy and/or institutional commitment**

SOPAC is currently in the process of developing investment profiles for several PICs. These profiles present a high-level desk-based assessment of the potential economic costs of a disaster. The profiles also identify the level of investment in DRM and will be used to draw attention to the benefits of investing in disaster risk reduction versus the cost of a disaster. Profiles have been completed for Vanuatu, Cook Islands, Republic of the Marshall Islands, Fiji and Papua New Guinea with Niue in draft and Tuvalu in its early stages.

The feasibility study of a catastrophe risk pool for the Pacific is being undertaken by the World Bank, Government of Japan and SOPAC for 5 PICs under the auspices of PCRAFI. The Pacific Disaster Risk Financing and Insurance programme of PCRAFI provides an opportunity for the countries to develop integrated financial solutions for the reduction of their financial vulnerability to natural disasters and to climate change. It aims to assist countries

<sup>5</sup> A risk pool is one of the forms of risk management mostly practiced by insurance companies. Under this system, insurance companies come together to form a pool, which can provide protection to insurance companies against catastrophic risks such as floods, earthquakes etc.



in improving their macroeconomic planning against natural disasters, including ex ante budget planning against natural disasters, post-disaster budget reallocation and execution to allow for efficient post-disaster response, and risk-based investment planning.

## (Sub-)Regional Indicator 14

### (Sub-)regional information exchange mechanism in place for effective communication during trans-boundary disasters

**Level of Progress: 3 Institutional commitment attained, but achievements are neither comprehensive nor substantial**

A number of partners support countries in developing information management systems. This includes initiatives such as the Strengthening Disaster Information Management Systems (DIMS) projects in Fiji and Solomon Islands by SOPAC in collaboration with national Red Cross societies, IFRC, UNISDR, UNOCHA, TAF/OFDA and UNDP. DIMS developed tools and procedures to guide information management primarily to support response but also for disaster risk reduction. The DIMS includes the preparation of:

- baseline data covering humanitarian indicators from different sectors, pre-disaster reference points for preparedness, response and risk reduction;
- assessments standardised assessment forms with agreed methodology and capacities; and
- disaster loss databases to capture information on disasters and associated losses and support the systematic collection of assessment information.

In 2010 / 2011 OCHA conducted information management missions in Cook Islands, Fiji, Kiribati, Papua New Guinea, Solomon Islands, Tonga and Vanuatu.

Federated States of Micronesia, Palau, Papua New Guinea and Solomon Islands through their EU EDF 9 B-Envelope allocations received assistance from SOPAC over the course of 2008 - 2012 to strengthen multihazard early warning communications and construction of emergency operations centres. Outputs include the development of SOPs, construction of and equipping EOC, installation of monitoring capability and capacity development of staff.

A regional mechanism is in place to request the International Space Charter and Sentinel Asia for satellite imagery over affected areas. OCHA, as a member of the Charter, can submit a request for post disaster imagery either through their Geneva headquarters or through UNOOSA and Japan Aerospace Exploration Agency (JAXA). Satellite imagery has been provided through this mechanism for a number of disasters.



# CHAPTER 3



## DISASTER RISK MANAGEMENT IN PACIFIC ISLAND COUNTRIES: SYNTHESIS OF NATIONAL PROGRESS







HFA	RFA
Priority for Action 1: Ensure that disaster risk reduction is a national priority with a strong institutional basis for implementation	Theme 1: Governance – Organisational, Institutional, Policy and Decision Making Frameworks

HFA	RFA
Indicator 1: National policy and legal framework for disaster risk reduction exists with decentralised responsibilities and capacities at all levels	Key National Activity: 1a) Integrate the management of economic, social and environmental risks into national planning and budgetary processes

All Pacific Islands Countries have or are in the process of mainstreaming DRM and CC into their national budgetary and planning processes. The process of developing DRM and CC National Action Plans has identified national and sub-national priorities through multi-stakeholder consultations. Resourcing to implement priorities has been through national budget allocations, the AusAID NAP Facility, the ACP-EU Natural Disaster Facility and DRM and CC Partners.

As of 2013, all 14 countries have identified DRM and/or CCA priorities to include in their national action plans. Progresses of these respective JNAPs have been reported in national RFA and HFA progress review reports. (Updates of the individual JNAPs can be obtained from SOPAC).

HFA	RFA
Indicator 2: Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels	Key National Activity: 1 d) Strengthen whole of government and stakeholder collaboration in disaster risk reduction and disaster management, identifying lead agencies, roles and responsibilities

The DRM/CCA JNAP development process identifies lead agencies and defines key roles and responsibilities of the agencies and communities involved and potential areas for collaboration. SOPAC compiles a regular update of national level DRM mainstreaming initiatives DRM National Action Plans, JNAPs and other national mainstreaming programmes principally to inform development partners and donors within the Pacific Disaster Risk Management Partnership Network. The information produced is intended to support further collaborative efforts between members of the Partnership Network in assisting PICs to realise their mainstreaming priorities.

The development and implementation of DRM/CCA JNAPs provide development partners a list of priorities identified for support. The integration of CCA and DRM priorities through the same NAP process in the countries involved enhances partner collaboration and effective use of resources available. An example of this is the efforts in Niue to align initiatives supported through the Pacific Adaptation to Climate Change (PACC) Project and through the AusAID and ACP-EU NAP funding facilities. The PACC Project supports national efforts to address CCA in relation to coastal vulnerability, food security and water. In Tonga, PACC will support the collection of topographic data for climate impact modeling of vulnerable coastlines on Tongatapu. This same dataset will be used by the AusAID funded Capacity-building for Tsunami Risk Assessment in the South West Pacific to develop tsunami inundation models for Tongatapu. The PACC Project was implemented in 2010 by the Tuvalu Public Works Department under the Ministry of Works, Water and Energy. It is funded by the Global Environment Facility (GEF) with the UNDP as its implementing agency and the SPREP as implementing partner. Under the project, Tuvalu will strengthen their water resource management.

Current funding support for the implementation of JNAPs has been made possible through the AusAID NAP Facility, ACP-EU Natural Disaster Facility, national Pacific Adaptation for Climate Change projects and national budgets. Additional funding support has also been made available through various partners and donors.

HFA	RFA
Indicator 3: Community participation and decentralization are ensured through the delegation of authority and resources to local levels	Key National Activity: 1 d) Strengthen whole of government and stakeholder collaboration in disaster risk reduction and disaster management, identifying lead agencies, roles and responsibilities

A number of regional community focussed DRM and CC initiatives have been implemented by non-government and faith based organisations. Some of these have been done in collaboration with the National Disaster Management Offices.

The Pacific Centre for Environment and Sustainable Development (PACE SD) at USP facilitates many community development projects with an environmental focus, particularly in connection with locally managed marine areas in Fiji. PACE SD released an extensive report in 2011 on good practice in community based adaptation to climate change (PACE SD, 2011).

Community participation in developmental activities, including DRR, is fairly strong in many of the PICs as it is well recognised that traditional governance mechanisms can support the implementation of such programmes especially in remote outer islands.

In Federated States of Micronesia, a number of organisations and associations have active programmes at this level, such as church groups, women's groups, youth groups, farmer groups, etc. A number of NGOs run projects at community level, such as International Organisation for Migration (IOM), FSM Red Cross, Pohnpei Conservation Society, Chuuk Conservation Society, Yap Community Action Programme, Kosrae Conservation and Safety Organisation, Island Food Community of Pohnpei, College of Micronesia, etc. The Micronesian Conservation Trust runs a small grant programme whereby financial support is offered for conservation and climate change adaptation activities at community level.

In Niue, the National Disaster Plan 2010 and the Village Council Bill include details of roles and responsibilities for local communities, including DRM issues disaster preparedness, response and recovery and Village Disaster (or Emergency) Plans are in place for all 14 villages.

HFA	RFA
Indicator 4: A national multi-sectoral platform for disaster risk reduction is functioning	<p>Key National Activity:</p> <p>1 d) Strengthen whole of government and stakeholder collaboration in disaster risk reduction and disaster management, identifying lead agencies, roles and responsibilities</p>

Most PICs have, or are in the process of establishing, multi-sectoral platforms for disaster risk reduction that also include climate change issues.

In the Cook Islands, the newly established Climate Change Cook Islands (CCCI – which has NGO, private sector and civil society membership) liaises closely with the National Disaster Council.

In the Marshall Islands, the National Disaster Council includes a smaller group called the National Climate Change Committee (NC3), with NGO participation often invited.

In Tuvalu, SOPAC facilitated a review of the existing DRM governance arrangements. An updated draft of the arrangements has been completed and will shortly be considered for adoption by the National Disaster Committee. The new arrangements highlight the various DRR and DM responsibilities of each of the key stakeholders within the government and at community level. The implementation priorities for the new arrangements will contribute to the development of a joint NAP for DRM/CCA. The JNAP will also be supported through a new Climate Change Policy for Tuvalu. SOPAC and SPREP are collaborating in support of these initiatives.

HFA	RFA
Priority for Action 2: Identify, assess and monitor disaster risks and enhance early warning systems	<p>Relevant Theme of the Regional Framework:</p> <p>Theme 3: Analysis and Evaluation of Hazards, Vulnerabilities and Elements at Risk</p> <p>Theme 5: Effective, Integrated and People-Focussed early Warning Systems</p>

HFA	RFA
Indicator 1: National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors	<p>Key National Activity:</p> <p>3 b) Conduct hazard and vulnerability assessments and mapping at all levels, which will include the collection of required baseline data</p> <p>3 f) Strengthen capacity at all levels to utilize risk assessment products and tools to enhance disaster risk reduction and disaster management, such as the Environmental Vulnerability Index (EVI) as a monitoring tool</p>





In 2009, training on Comprehensive Hazard and Risk Management (CHARM) was provided by SOPAC in collaboration with stakeholders in Samoa to foster their efforts in developing a work programme to support their national disaster management plan.

The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) analyses risks from tropical cyclones, earthquakes, and tsunamis as monetary loss and casualties. Country risk profiles were derived from this study using the comprehensive database of regional risk exposure, tropical cyclones, earthquake and tsunami models to guide planning in countries and have been completed for all PICs. The analysed data is widely available to all government agencies and relevant authorities through [pacris.sopac.org](http://pacris.sopac.org).

SOPAC and the Land Resources Division (LRD) of SPC and the German Agency for International Cooperation (GIZ) have been working with Forestry and Agriculture Departments of Pacific Island Countries to map forestry and agricultural resources to help manage their responses to the challenges and opportunities posed by climate change. Temporal mapping of vegetation and forest cover using remote sensing techniques has begun with field verifications being undertaken by in-country teams.

OCHA coordinates the conduct of Rapid Impact Assessments to help inform the support subsequently provided to Pacific island countries by the Pacific Humanitarian Team. Using Inter-Agency Standing Committee (IASC) indicators, the assessment identifies priority areas to guide the humanitarian response.

OCHA Pacific took the lead in a Post-Disaster Needs Assessment and coordination with national authorities in response to TC Vania in Vanuatu. It was an opportunity to test new tools, the multi-sector rapid needs assessment template and the humanitarian action plan. These tools were found to be useful in supporting national authorities to plan for and implement a timely and effective response in conjunction with PHT partners.

At the request of the NDMO and UNICEF, OCHA Pacific led Initial Rapid Assessment of TC Atu which affected the outer islands of the Tafea Province in Vanuatu.

The Fiji Department of Environment and PACE SD undertook an assessment on impacts of climate change on coastal management and water supply. Six rural communities were selected in Fiji for pilot studies. These six rural communities include Bavu, Buretu, Votua, Navukailagi, Korotasere and Druadrua villages in the Fiji Islands. The programme is funded by the Australian Government.

Severe Weather Forecasting Demonstration Project (SWFDP) is a strategy followed by the World Meteorological Organisation (WMO) to improve severe weather forecasting in developing countries by:

- improving their ability to produce severe weather forecasts and warnings;
- increasing the lead-time for issuing warnings;
- improving the quality of the interactions between each National Meteorological and Hydrological Service (NMHS) and its media, disaster management and civil protection authorities; and
- raising the visibility, credibility and value of meteorological services to all users.

In the South Pacific, SWFDP is known as the Severe Weather Forecasting and Disaster risk reduction Demonstration Project (SWFDDP) to emphasise the importance of liaising closely with those receiving the severe weather forecasts and warnings.

SWFDDP commenced as a pilot project in November 2009 involving participating countries - Solomon Islands, Vanuatu, Fiji and Samoa; with Wellington taking on the role as lead regional centre by issuing twice daily, South Pacific Guidance charts for "Heavy Rain", "Strong Wind" and "Large Waves" out to 5 days, on the Project website known as MetConnect Pacific. Computer centres located in the United Kingdom, United States of America, Japan and Australia provide an array of Numerical Weather Prediction (NWP) products to help compile these Guidance charts. References to tropical cyclone advisory and outlook information provided by both Brisbane and Nadi are also displayed on MetConnect Pacific. In November 2010, Kiribati, Tuvalu, Tonga, Niue and the Cook Islands joined the others as participating countries, making a total of 9 in all. At this point, SWFDDP entered the Full Demonstration phase and will continue in this phase until a management team meeting decides the future of the Project in early 2013.

HFA	RFA
<p><b>Indicator 2: Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities</b></p>	<p><b>Key National Activity:</b></p> <p><b>3 b) Conduct hazard and vulnerability assessments and mapping at all levels, which will include the collection of required baseline data</b></p> <p><b>3 f) Strengthen capacity at all levels to utilize risk assessment products and tools to enhance disaster risk reduction and disaster management, such as the Environmental Vulnerability Index (EVI) as a monitoring tool</b></p>

Vanuatu and Solomon Islands NDMOs have developed disaster loss databases of disasters and related impacts using the DesInventar methodology. Both currently experience the challenges of ongoing maintenance of the systems.

Vanuatu, Solomon Islands and Papua New Guinea formed the Melanesian Volcanological Network to provide a mechanism to strengthen volcano monitoring and assessment of associated risks and provide technical and capacity support to national volcano observatories. Since its inception a number of exchanges have taken place.

A number of regional observing systems have been established through a number of projects. These include HYCOS, the South Pacific Sea Level and Climate Monitoring Project, national seismic networks to name a few. The data collected is available for the assessment of vulnerabilities and risks related to natural hazards.

Emergency Management Cook Islands (EMCI), in collaboration with national response agencies, is developing the FERN – Front-Line Emergency Response Network, a computer information system that will assist regional disaster management units to disseminate disaster warnings. It will circulate and coordinates information available within a network of agencies to respond quicker and more efficiently.

HFA	RFA
Indicator 3: Early warning systems are in place for all major hazards, with outreach to communities	<p>Key National Activities:</p> <p>5 a) Establish and/or strengthen institutional capacities to ensure early warning systems are integrated into governmental policies, decision-making processes and emergency management systems at both national and community levels; and</p> <p>5 b) Complete inventories and needs analyses of national early warning systems with inputs from all stakeholders to ensure that traditional knowledge and community needs are addressed.</p>

FSPI's "Increasing Community Resilience to Natural Disasters through Use of Traditional Coping Strategies" is implemented in Tuvalu and Samoa and incorporates a community-based and people-centred EWS approach.

JICA is implementing a long term project on "Strengthening the Community-Based Disaster Risk Management Project in the Pacific Region" in Fiji and the Solomon Islands. The projects work with the respective NDMOs and communities in the catchment to establish effective flood warning systems.

Fiji has improved flood warning capacities by strengthening hydrological monitoring in the Ba, Nadi, Navua and Rewa river catchments. Institutional arrangements for flood forecasting and warning are currently under review by Government.

A team of international volcanologists, local government officials, and community representatives worked together on Ambae Island in Vanuatu to develop a warning system for volcanic eruption as well as shelter and evacuation plans. Ambae is the island with Vanuatu's largest active volcano. Some 9,500 inhabitants live beneath a lake perched at 1,340 m in the volcano's summit caldera. Scientific and local knowledge were combined in gender segregated as well as combined community meetings. A warning and evacuation plan was made, and committees were formed to maintain awareness of the eruption hazard.

The Australian Tsunami Warning System National Capacity Assessment Project assisted all Pacific island countries to assess their ability to receive, communicate, prepare for and respond to tsunami warnings. It identified requirements for further capacity building programmes and assists in directing funding from various potential sources to address these requirements. Details of the reports for each country can be found in the reference section.

HFA	RFA
Indicator 4 : National and local risk assessments take account of regional /trans-boundary risks, with a view to regional cooperation on risk reduction	<p>Key National Activities:</p> <p>3 d) Collect and analyze comprehensive data on the direct and indirect impacts of disasters on development in both the short and long-term.</p>

The New Zealand National Institute of Water and Atmospheric Research (NIWA) is working with Samoa's Ministry of Natural Resources and Environment (MNRE), and other partners, to develop a climate early warning system in Samoa. The system will provide more timely and targeted climate information, and ultimately help local people mitigate the effects of climate variation and change. The new climate early warning system (CLEWS) will provide a range of sector-specific climate information, delivered more promptly, enabling quicker responses to the threat of adverse climate events. In the longer term, people will have more information as they work to adapt to climate change.



All PICs are developing or have developed a Tsunami Response Plan and Standard Operating Procedures (SOPs) for relevant national, provincial and village councils.

HFA	RFA
Priority for Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	Theme 2: Knowledge, Information, Public Awareness and Education

HFA	RFA
Indicator 1: Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing systems, etc.)	<p>Key National Activity:</p> <p>2 c) Strengthen collaboration among government and non-government agencies to more effectively underpin information management, public awareness and education</p> <p>2 g) Integrate traditional knowledge into information management systems</p> <p>2 j) Establish an integrated national information system, for collection and management of comprehensive data and information, for disaster risk reduction and disaster management.</p>

The existing DRM NAPs and subsequent JNAPs for example in the Cook Islands, highlight the need for enhanced information management capacity to support the NDMOs response efforts. Fiji is working with Suva based PDRMPN members to develop a Disaster Information Management System. Both Vanuatu and Solomon Islands have focussed on capturing impact related information using the DesInventar methodology.

In the Pacific, a number of information systems have been developed and are being used by PICs for a range of purposes. These include regional databases to host disaster and climate risk information such as PCRAFI [pacificclimatefutures.net/](http://pacificclimatefutures.net/).

SOPAC currently supports the development of Geographical Information Systems in PICs to help monitor and manage resources and assess vulnerabilities. Information management systems are also maintained by a number of government agencies such as the Department of Lands, custodians of national data. These information systems often host all land based information such as topographic data layers, land parcel registrations, land use and land cover data, statistics/census information and any aerial photographs and data collected during air survey campaigns. Pacific Disaster Net currently hosts a range of DRM information relevant to the Pacific. The information is provided to PDN by partners and countries.

HFA	RFA
Indicator 2: School curricula, education material and relevant trainings include disaster risk reduction and recovery concepts and practices	<p>Key National Activity:</p> <p>2 a) Strengthen training programmes to enhance professional development in disaster risk reduction and disaster management amongst all stakeholders.</p>

In Samoa and under the Government of Samoa’s Second Infrastructure Asset Management Project, a School Curriculum Review to include Disaster Management was undertaken. Outputs of the project included the review of the national school curriculum and the development of the Disaster Risk Modules: Teacher’s Resource Kit.

In Fiji, the Ministry of Education, in partnership with UNICEF and Save the Children Fund conducted a Train the Trainers workshop on Education in Emergency (EIE) in 2010. The workshop aimed to equip trainers who will in turn train teachers on how to respond to natural disasters and complex emergencies.

In the Republic of Marshall Islands, separate initiatives funded by AusAID and US National Science Foundation through the Pacific Resources for Education and Learning (PREL) are currently underway to ensure a greater emphasis is placed on children learning the importance of DRR and CCA.

In the Federated States of Micronesia and the Republic of the Marshall Islands the Climate Adaptation, Disaster Risk Reduction, and Education (CADRE) Program is targeting approximately 10,000 school-aged students in up to 50 schools and surrounding communities to a) support sustainable adaptation and preparedness strategies, and increase the resilience of vulnerable schools and communities to climate change and natural hazards in the Federated States of Micronesia and Republic of the Marshall Islands. While the PREL Project aims to integrate climate change and disaster issues into the existing science curriculum.

The European Commission Humanitarian's Aid Department and the French Red Cross funded a Community based disaster preparedness training for members of the Solomon Islands Red Cross, Vanuatu Red Cross Society, French Red Cross, the IFRC, NDMO and staff of the EU. The training is part of the "Together, Becoming Resilient (TBR) Project which aims to strengthen disaster attentiveness capacities of vulnerable communities.

TAF / OFDA and SOPAC have collaborated with the Fiji National University through the School of Medicine, Nursing and Health Sciences to address the region's need for academic programmes in disaster risk management. The Post Graduate Certificate in Disaster Risk Management was launched in mid-2012 and is available to students across the region through online learning. A second post-graduate course in Emergency Health is being developed by FNU in collaboration with the Monash University, Australia.

A number of training courses including Introduction to Disaster (Risk) Management (IDM), Initial Damage Assessment (IDA) and Emergency Operations Centres (EOC) have been conducted in many countries between June 2009 and August 2012. An important addition is the DRR course which has been delivered regionally and nationally in Samoa.

USP has a Post Graduate Diploma and Masters Programme in Climate Change. The courses in the programmes are drawn from existing disciplines and incorporate DRR and DM concepts already developed for the Pacific region. With technical support from SOPAC and IFRC, USP developed a new disaster management unit as part of this academic programme.

The Pasteur Institute in New Caledonia and Public Health Division of SPC provided training to 19 Ministry of Health staff in mosquito surveillance and control in 2011.

HFA	RFA
Indicator 3: Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened	Key National Activity: 2 i) Strengthen national capacity for conducting comprehensive disaster impact assessments, and cost-benefit analysis of disaster risk reduction and disaster management measures.

United Nations Economic Commission for Latin America and the Caribbean (UNECLAC), UNESCAP, UNISDR and SOPAC are adapting the Damage and Loss Assessment methodology for the Pacific. Pacific Islands' officials from disaster management, planning and finance are part of this collaboration and the first regional pilot training in Damage and Loss Assessment (DALA) was conducted in Vanuatu for representatives of 8 PICs in March 2011.

Upon requests by governments, SOPAC has carried out economic impact assessments of disasters. These cost benefit analyses include: Economic Analysis of Flood Risk Reduction Measures Samoa (Woodruff, 2008); Economic analysis of flood warning in Navua, Fiji (Holland, 2008); Economic costs of Ba Floods 2009, Fiji (Ambroz, 2009); and Economic costs of Nadi Floods 2009, Fiji (Holland, 2009).

A comparative economic assessment of the merits of coastal mining compared to dredging the sand/gravel from the local lagoon was undertaken in 2007 in Tarawa, Kiribati. The assessment assisted the Government of Kiribati to decide whether and how dredging sand from the lagoon might be a more suitable source for sand and gravel.

The outcomes of the economic assessment were subsequently used in 2008 to shape a successful project proposal to the EU to establish a sustainable lagoon dredging enterprise to divert sand mining to the less vulnerable lagoon area and reduce the threat of coastal flooding.

Over the period 2009-2011, the Government of Kiribati (with technical assistance from the SOPAC) have used the findings of the economic assessment to directly guide the development of a community participation plan and its associated communications and behaviour plan as preparation for lagoon dredging. The dredge itself is presently being constructed.

In Tonga, Geoscience Australia and SOPAC, with AusAID support, are aiming to improve the understanding of tsunami risk thus in turn inform response planning. Tsunami inundation maps were developed using several earthquake scenarios and presented to the Tonga Disaster Committee to develop evacuation plans for Tongatapu.

In Fiji, the Nadi Integrated Flood Management (IFM) Project aims to implement a mix of appropriate strategies and options which have been carefully evaluated based on technical feasibility, cost effectiveness and socio-cultural viability/acceptability to reduce flood losses. The Project complements and enhances the work of the GEF-funded IWRM Demonstration Project and EU-IWRM governance programme in the Nadi catchment. It builds on initiatives such as the Pacific HYCOS Project and disaster reduction activities funded under the AusAID NAP facility.



HFA	RFA
Indicator 4: Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities	<p><b>Key National Activity:</b></p> <p>2 b) Expand and focus public awareness and education programmes to enhance community resilience through community-driven approaches, initiatives and information sharing.</p> <p>2 d) Develop strategic and, long-term approaches to the design, implementation and evaluation of public awareness, education and training programmes.</p> <p>2 e) Develop resources for, and delivery of, media-based public awareness and education programmes.</p> <p>4 c) Develop and implement a disaster management training programme including community-based disaster risk management.</p>

The International Day for Disaster Risk Reduction (IDRR) is celebrated annually on October 13. All NDMOs have included this as part of their national disaster awareness week programme.

In 2012, SOPAC and UNISDR invited Pacific island countries to mark the IDRR as part of National Disaster Awareness Week activities under the theme “Women and Girls – the [in]Visible Force of Resilience”(www.unisdr.org/2012/iddr/).

The UNISDR’s Global Campaign ‘Making Cities Resilient’ theme in the Pacific: “Making the Pacific Resilient – My Community is Getting Ready!” promotes increased understanding and commitment by local governments to risk reduction and building resilient cities and communities to disasters and climate change as well as caters for knowledge sharing and increased capacities at local level. In the Pacific region, 10 local governments are participating in the campaign. These include Ba, Lami, Nadi, Nausori, Rakiraki and Suva in Fiji; Luganville in Vanuatu, and Cairns, Lake Macquarie and Townsville in Australia.

In order to increase the cross-sectoral collaboration and stakeholder involvement IWRM entails, Fiji’s Nadi Basin IWRM demonstration project launched an awareness campaign targeting a wide range of audiences through a variety of media.

Most Pacific island communities continue to maintain their traditional livelihoods and subsistence economies. Traditional knowledge is often a community-centered and an orally-based method of information sharing and use. Participatory 3D modelling (or P3DM) has been used in several communities in the Pacific. In February 2011 The Nature Conservancy and partners in Asia-Pacific worked with Boeboe community in the Solomon Islands to carry out climate risk assessments to help the community think through options to adapt and build their resilience to future climate impacts. These options included better protection of their natural resources and relocation of key infrastructure and services from the narrow coastal belt. A digital elevation model and sea-level rise prediction using the latest digital 3D technology was developed alongside the hands-on community model. Both tools mutually supported each other and provided the community with powerful information for decision-making. Using the same approach but on a much larger scale, the initiative undertook a second exercise in Manus Province, Papua New Guinea to link to the Government’s efforts to plan for climate change impacts.

Transcription of oral tradition in Vanuatu was pursued by the NDMO under the NAP implementation programme and is continuing in collaboration with the Vanuatu Cultural Centre. In 2011, EMCI developed a documentary capturing traditional signs of cyclones in the Cook Islands.

HFA	RFA
Priority for Action 4: Reduce the underlying risk factors	Theme 6: Reduction of Underlying Risk Factors

HFA	RFA
Indicator 1: Disaster risk reduction is an integral objective of environment related policies and plans, including for land use, natural resource management and adaptation to climate change	<p><b>Key National Activities:</b></p> <p>6 c) Promote risk-sensitive resource-use policies and practices and ensure compliance.</p>

The EU funded Disaster Risk Reduction project implemented by the Applied Geoscience and Technology Division, Secretariat of the Pacific Community addresses the issues of accessing safe drinking water in Tonga, Tuvalu, Nauru, Federated States of Micronesia and Marshall Islands using a range of solutions. In Tonga the upgrade of the Mataki’eua Wellfield has seen the installation of new well sheds and submersible electric water pumps. Possible pollution sources from land use practices over the area were also addressed by the project.

In Tuvalu, rainwater tanks were supplied and installed in Funafuti. Repairs and supply of guttering and downpipes were also done for houses. Ministry of Public Works and the Tuvalu Association of Non-Government Organizations (TANGO) undertook some awareness work with the communities on Funafuti focussing on good management of rainwater catchment systems and water conservation.

In Nauru, the storage capacities of 6 ferro-cement tanks that receive water from the desalination plant have been increased. Water distributed through the reticulated supply was a real risk as the building which was housing the 6 tanks was falling apart. Work to replace the building structure commenced in November 2010 with the dismantling of the old structure and the construction of the new building commenced in early 2011.

In the Marshall Islands the installation of 250 rain water catchments in Ebeye has been completed. On Majuro, 350 rainwater catchments (10,000 litre capacity) were installed. Also 173 rainwater tanks were installed on outer islands.

The genetic resources present in native and exotic trees represent a resource of vast economic, social and environmental importance to Pacific Islanders: everyday many hundreds of tree species are used by Pacific Islanders for meeting basic needs. Certain tree species which are well adapted to extreme conditions will be vital for providing resilience to Pacific Island production systems in the face of climate change and more extreme climate events, especially cyclones and storm surge. In response to the above, the SPC Land Resources Division (LRD), with the support of JICA, CSIRO and the SPC/EU FACT Project, has been working on establishing a regional tree seed centre at its Narere facility that will facilitate the efficient, effective and safe exchange of priority tree germplasm within and between PICTs. This will be critical to sustaining genetic diversity within the Pacific and enhancing the livelihoods of Pacific communities. The centre which will also undertake training and research in seed collection, treatment, storage and propagation, began operation in the first quarter of 2012.

Under LRD's second strategic objective, Integrated and Sustainable agricultural and forestry resources management and development, the Division continued in 2012 to implement five outputs, including: establishment of a climate-change adapted collection of over 100 crop varieties; establishment of a mechanism for rapid seedling production and distribution in times of disaster; strengthening of pest incursion responses and quarantine pest surveillance in most PICTs; support for development of national agriculture strategic plans in five PICTs; support for review and harmonisation of legislation and regulations on use of pesticides in six PICTs; finalising of the national land use policy for the Cook Islands; support for the review and development of agriculture policies in Tonga and Vanuatu; mainstreaming of climate change into agriculture and forestry sector plans; and capacity building of PICT stakeholders in agriculture, forestry and land policies and sustainable practices.

Under the Improved food and nutritional security objective, LRD continues to work on four outputs with activities including the following: support for the implementation of the Framework for action on Food Security in the Pacific; development of appropriate management techniques for breadfruit disease in Kiribati and mitimiti disease of taro in Solomon Islands; cheaper feed sources for livestock; development of a regional framework for sharing indigenous knowledge; research on genetic diversity of breadfruit and swamp taro and establishment of gene banks in at least five PICTs; and capacity building for PICT stakeholders in aspects of food security.

The LRD has established a climate-change-ready collection of crops at the Centre for Pacific Crops and Trees to ensure that Pacific Island Countries and Territories (PICTs) have access to planting material with climate ready traits, such as drought and salt tolerance. LRD in partnership with the German Technical Cooperation (GTZ) is supporting Fiji, Tonga and Vanuatu to manage their response to the challenges and opportunities posed by climate change. This includes developing adaptation strategies for the agriculture and forestry sectors and integrating climate change into policies in these sectors.

The Samoa Infrastructure and Asset Management (SIAM) Project was undertaken in 2010 to address climate change and other hazards. The project, which was funded by the World Bank, aimed to reduce Samoa's coastal vulnerability and strengthen institutional and community response capability, land use planning and disaster management frameworks. Activities included the training of government staff to undertake consultations and training in villages and the development of coastal infrastructure management plans (CIM) through participatory village consultations. These CIM plans have since been reviewed to include DRM and CC considerations.

A small grants programme was launched in Port Vila in 2010 as part of the partnership between the GEF, UNDP and New Zealand Aid (NZAID). In its pilot phase the programme targeted environmental problems at national level. These include depletion of natural resource stock through unsustainable utilisation, loss of natural habitat and climate change because these add stress to the local communities and the island's natural resources.

HFA	RFA
Indicator 2: Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk	Key National Activities 6 b) Support and enhance the capacity of social and planning systems to ensure vulnerable populations are less exposed to disaster risks and disaster impacts.





The Vanuatu Government and members of the VHT are implementing projects aimed at building community resilience in the aftermath of a disaster. This includes programmes to rebuild livelihoods such as on Gaua following increased activity of the volcano.

In Federated States of Micronesia, the Pohnpei Island Food Community is working with local communities on food security programmes in partnership with churches, youth, women and schools. Aramas Kapw programme (Micronesia Bound) is a youth program targeting at-risk youth. Gender issues are also beginning to receive more attention with the establishment of a National Commission on the Status of Women in 2010.

Microfinance schemes are becoming more prevalent across many PICs. For example, in Republic of Marshall Islands, small loans can be taken out by fishermen, farmers and handicraft makers. Most loans are for consumables and are usually for between US\$2000-3000 up to a maximum of US\$10,000. The main microfinance scheme is funded by Republic of China (Taiwan) and operates in partnership between the Bank of the Marshall Islands (BOMI) and the Marshall Islands Development Bank.

In the Solomon Islands, there are social development policies now in place in the areas of food security, livelihoods (e.g Live & Learn, Kastom Garden and Ministry of Agriculture projects) and Public Health (health centres present throughout rural areas).

HFA	RFA
<b>Indicator 3: Economic and productive sectoral policies and plans have been implemented to reduce the vulnerability of economic activities</b>	<b>Key National Activities</b> <b>6 d) Implement appropriate building codes and monitor and report compliance by responsible national administrative bodies.</b>

In January 2011, the Fiji National Fire Authority (NFA) advised all business owners to install a new fire monitoring system. The NFA also urged business owners to get their properties connected to the system to allow the NFA to quickly respond to any fires that are detected. The fire monitoring system will detect any smoke in the building and will trigger an alarm at the fire station and alert the fire crew of possible fires.

In Republic of Marshall Islands, since the HFA Review in 2010, the BOMI has introduced two new policies addressing disaster preparedness and response both internally and for its customers. The first was approved and established to provide finance to fund repairs to structures damaged after a disaster event. Given the lack of severe weather events since its introduction, it is yet to be tested. The second policy is awaiting approval and is for internal operations. The policy outlines strategies to put in place should a disaster occur, and develops a plan on how the bank would respond and aim to return to normal operations. Both policies were developed as a result of SOPAC consultations, highlighting BOMI's flexibility and openness to recognising the need to include disaster risk considerations in operations.

In Palau, there is generally high awareness of the country's economic dependence on its high quality natural environment (terrestrial and marine) and environmental safeguards are well-established. For example, the export of sea cucumber was recently prohibited following an upsurge in export activity and studies revealing the unsustainability of the activity. Likewise, government is investing in the exploration and promotion of aquaculture to remove the pressure off wild resource stocks. Sustainable farming is being promoted and the use of renewable energies is beginning to take hold. Invasive alien species are being monitored and eradicated (e.g. fruit fly).

UNDP assisted the Department of Agriculture in identifying activities to strengthen disaster preparedness and response in the sector.

HFA	RFA
<b>Indicator 4: Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes</b>	<b>Key National Activities</b> <b>6 d) Implement appropriate building codes and monitor and report compliance by responsible national administrative bodies.</b>

In 2010 the Fiji Institution of Engineers (FIE) realised certain shortcomings and the legal consequences of using some sections of the National Building Code (NBC), Fiji Islands under the Public Health Regulations 2004. Some referenced Standards and Codes in the NBC together with certain laws in the building and construction industries in the last 20 years or so have changed. In addition a lot has evolved in areas of natural disasters, climate change adaptation and mitigation. These changes have legal implications. The FIE proposed to the Minister for Health, Fiji, to review the NBC. Last year the FIE was authorised to lead the review process. Initial consultation of the stakeholders took place in October 2011. The consultative forum agreed that a Steering Committee comprising of 2 representatives of the FIE, one representative of the Fiji Association of Architects and one representative each from the Ministry of Health, Office of the Solicitor General and the Ministry of Local Government, Urban Development and Housing be formed to facilitate the review process. Stakeholders comprised of engineers, architects, donors, SOPAC, universities, insurance industry, builders, government ministries, Local Government, banks, Disability Forum, statutory organisations and various other industries.



In 2010, after Tropical Cyclone Pat, the Cook Islands decided to introduce building codes to be factored into the reconstruction of private homes.

As part of Niue's activities under the JNAP for Disaster Risk Management and Climate Change, the process of updating of building codes is currently underway (July-August 2012). The intention is to provide new legislation for building codes and also offer appropriate training and guidance to builders to ensure the new Code was followed accordingly.

UNHABITAT's Climate Resilient Cities Initiative aims to provide urban planners with tools to improve land use practices. Discussions have begun with SOPAC, Australian Department of Climate Change and Energy Efficiency (DCCEE), ADB, World Bank and municipalities on the integration of disaster reduction into urban planning.

HFA	RFA
Indicator 5: Disaster risk reduction measures are integrated into post-disaster recovery and rehabilitation processes	Key National Activities: 6 a) Review and strengthen disaster management planning arrangements ensuring clearly-defined roles and responsibilities, and an integrated approach involving all stakeholders.

In the Solomon Islands, the Disaster Risk Management (DRM) Plan 2010 establishes a Long Term Recovery Committee. Terms of Reference (ToR) for this committee are in the process of being finalised.

Following the 2007 tsunami in the Solomon Islands, and 2009 tsunami in Samoa and Tonga, early warning systems including SOPs and community response plans have been reviewed. The Solomon Islands has since establishment disaster offices in each of the provinces. In Samoa, government has developed infrastructure away from the coasts including the established of a second business centre out of Apia. The voluntary relocation of a number of coastal communities after the tsunami was supported by government with the construction of inland roads.

HFA	RFA
Indicator 6: Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure	Key National Activities: 6 d) Implement appropriate building codes and monitor and report compliance by responsible national administrative bodies.

In July 2010, a group of Pacific island engineering students studying in New Zealand, as part of an Engineering Project in Community Service (EPICS) Project, visited Samoa to identify the building challenges that have resulted from the 2009 tsunami. The aim of the visit was to engage with local builders, trades people and engineers to identify ways to incorporate traditional and modern construction methods to build safer homes.

Niue is in the process of reviewing their Building Code to incorporate disaster and climate risks. The process includes the review of the associated legislation and developing guidelines for builders.

HFA	RFA
Priority for Action 5: Strengthen disaster preparedness for response	Relevant Theme of the Regional Framework Theme 4: Planning for effective Preparedness, Response and Recovery

HFA	RFA
Indicator 1: Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place	Key National Activities: 4 a) Review and strengthen disaster management planning arrangements ensuring clearly-defined roles and responsibilities, and an integrated approach involving all stakeholders. e) Strengthen emergency preparedness and response agencies.

SOPAC provides DRM technical advice and policy support to PICTs. These include the support provided through the EU EDF 9-funded B-Envelope Project to Palau, Papua New Guinea, Federated States of Micronesia and the Solomon Islands to enhance their response capacity by building and resourcing Emergency Operation Centres and providing communications equipment.

In the Solomon Islands and Palau the construction and equipping of EOCs are being done through the EU-B Envelope Project. A number of provincial EOCs are also being constructed in the Solomon Islands under the same project. Training has been provided to a number of staff in key agencies involved in EOC operations with more to follow throughout the duration of the project.



The Australasian Fire Authorities Council (AFAC) maintains an active membership of the Pacific Islands Fire Services Association and provides capacity building across the region. For example, in May 2011, an MoU was signed between the state of Queensland represented by the Department of Community Safety (through Queensland Fire and Rescue Service) and the state of Papua New Guinea represented by the Ministry of Inter-Government Relations (through Papua New Guinea Fire Service). The agreement, which lasts for three years, commits Queensland Fire and Rescue Service to assist where possible in the building of capability, capacity, sustainability and resilience in the provision of emergency response into Papua New Guinea. Queensland Fire and Rescue Service also provides redundant equipment to Papua New Guinea Fire Service, in addition to offering traineeships for six fire officers from Papua New Guinea who are participating in a scholarship programme.

HFA	RFA
<b>Indicator 2: Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programmes</b>	<b>Key National Activities:</b> <b>4 a) Review and strengthen disaster management planning arrangements ensuring clearly-defined roles and responsibilities, and an integrated approach involving all stakeholders.</b>

Fiji's NDMO, supported by The Asia Foundation (TAF) through the Office of U.S. Foreign Disaster Assistance conducted professional training for divisional planners, district officers, Roko Tuis and other Central/Eastern personnel in Suva in February 2010. Participants received training on EOC and Initial Damage Assessment (IDA). The purpose of the EOC course was to provide knowledge and skills necessary for the establishment, operation, management and administration of emergency operations centres at national, provincial and district level.

The Solomon Islands NDMO, in strengthening the country's disaster response capacity, has established disaster management offices in each province. The Horabau community, with assistance from Solomon Development Trust, Solomon Island Red Cross, National Disaster Management Office and AusAID, built an evacuation and resource centre in the village on a hilltop in Northwest Guadalcanal to prepare for natural disasters including tropical cyclones (flooding) and earthquakes.

In December 2009, OCHA deployed a Humanitarian Affairs Analyst to support the Vanuatu Government and humanitarian partners with the evacuation of 500 people and preparing an Evacuation Plan for 3000 people following increased volcanic activity in the country.

In 2011 SOPAC, Ministry of iTaukei Affairs, PCIDRR, Red Cross, and Fiji NDMO finalised Initial Damage Assessment forms. SOPAC, PCIDRR, OCHA, and the Fiji NDMO collaborated together in 2011 to finalise the National Emergency Standard Operating Procedures.

A Suva Tsunami Evacuation Map for Fiji was prepared by UNESCO/IOC, SOPAC Division, Suva City Council, Suva Chamber of Commerce, Mineral Resources Department, Fiji Land Information System and held in Fiji NDMO for schools along the Suva Peninsula. The evacuation map was tested during the tsunami drills in November 2011.

SOPAC, Tonga Met Services, Geology Services Unit, Police, PCIDRR and National Emergency Management Office (NEMO) finalised Tonga's National Tsunami Response Plan in 2011. The plan was tested during the Pacific Wave 2011 Functional Exercise.

In 2011 SOPAC also assisted Tonga in the preparation of agency response plans for the Ministry of Works, Police and Fire Service, Defence Service, Ministry of Health, Ministry of Agriculture, Ministry of Education, Customs and the National Red Cross Society.

HFA	RFA
<b>Indicator 3: Financial reserves and contingency mechanisms are in place to support effective response and recovery when required</b>	<b>Key National Activities:</b> <b>4 b) Ensure that the disaster management organisational structure includes an adequately resourced national disaster management office and functional emergency operations centre(s) (EOC) and other infrastructure.</b>

Fiji and Tonga have recently established a National Disaster Fund. In the North Pacific both the Federated States of Micronesia and the Marshall Islands have the capacity to draw on emergency funding from the US Government through their respective Compacts of Free Association. The Cook Islands has established a Disaster Assistance Emergency Fund and the Government has approved an initial capital injection of approximately NZ\$200,000 for the annual appropriations in 2011.

Under the Pacific Disaster Risk Financing and Insurance Programme of PCRAFI, technical advice will be provided to countries to help improve their macroeconomic planning against natural disasters, including extant budget planning against natural disasters, post-disaster budget reallocation and execution to allow for efficient post-disaster response, and risk-based investment planning.

HFA	RFA
Indicator 4: Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews	<p><b>Key National Activities:</b></p> <p>4 d) Determine, establish and maintain effective and sustainable emergency communications systems.</p> <p>3 d) Conduct analyse comprehensive data on the direct and indirect impacts of disasters on development in both the short and long-term</p>

Under existing DRM arrangements, PICs have in place processes to exchange information with other national and non-government agencies during disasters. OCHA also has a mechanism in place to facilitate the exchange of information with the PHT and UNDAC if requested by countries.

The STAR network provides an opportunity for countries and scientists to exchange disaster information, research and experiences. Following the 2009 tsunami that affected a number of PICs, a special session was held during STAR to present scientific and technical findings and share experiences of personnel involved in the post-disaster assessment. From the assessment, a compiled report from the International Tsunami Science Team in Samoa has been published.

The Vanuatu Humanitarian Team (VHT) follows the Pacific Humanitarian Team's cluster approach and is a collection of government and non-government agencies coming together to provide a better coordinated approach to disaster response. Currently coordinated by Oxfam and supported by UNOCHA, the VHT partners liaise closely with Vanuatu's NDMO to ensure timely and strategic disaster response.

In the Federated States of Micronesia, the aim is to improve the early warning system network by strengthening the communication network and renovation of State Disaster Coordination Centres. The renovation of the State Disaster Coordination Centres in Chuuk, Kosrae and Yap was completed in 2011 and the construction of a new National Emergency Operation Centre in Palikir was completed in February 2013.

In Papua New Guinea, the focus is in strengthening early warning communication equipment with the major stakeholders. The project has supported the Department of Environment and Conservation with some flood monitoring equipment including a new vehicle to undertake more field work. Five Automatic Weather Stations (AWS) and 20 Data Logging Rain Gauges were supplied to the Papua New Guinea National Weather Service to improve their capacity to monitor weather patterns. Ten seismic stations were also installed in 2012 by the Port Moresby Geophysical Observatory to monitor seismic activity.

In 2010 SOPAC provided approximately FJD\$50,000 worth of equipment (laptops etc.) to the Fiji NDMO to help strengthen emergency coordination and improve information management for disaster response. The development of the Initial Damage Assessment forms, GIS training for DRM and the development of SOPs all contribute to this.

In 2011, IFRC conducted a comprehensive review of International Disaster Response Laws, Rules and Principles for Vanuatu. The same process has occurred in the Cook Islands, conducted in partnership with the Cook Islands Red Cross National Society. This process allows PICs to better understand their own disaster response laws and processes so as to better regulate international support and identify areas in their current legislation that need to be strengthened.



# CHAPTER 4



## CHALLENGES, FUTURE OUTLOOK AND RECOMMENDATIONS





# Challenges

The Pacific faces inherent challenges in the area of disaster risk management and climate change adaptation relating to physical, social, economic and environmental vulnerabilities. In a region with considerable human resource capacity constraints, the Pacific is also highly disaster prone and extremely vulnerable to the impacts of climate change. The challenges in addressing DRM and CCA come alongside considerable development concerns in terms of health, education, governance, youth, planning and infrastructure and underlying issues of poverty. DRM and CCA cannot be separated from these underlying development challenges.

Concurrently, Pacific islanders are highly adaptive by nature, with cultures having evolved in environments where coping with unpredictable disasters is the norm. This adaptive and flexible mentality is pervasive throughout the region from local communities living subsistence livelihoods to disaster managers at the national level. In addition, the Pacific region is home to experienced experts in DRM and CCA across all sectors – within national governments, local and international NGOs, communities, CROP and UN agencies, private sector and the donor community. What is lacking is the institutional depth in expertise – often an organisation has only one expert.

The challenges identified below therefore need to be addressed with an understanding and appreciation of the Pacific context: a vast ocean with small islands containing rich cultures, adaptable populations facing a range of development challenges and experienced experts (if only relatively few) in DRM and climate change.

## Challenges include:

### Governance and institutional arrangements:

- Despite some reported progress in this area, more is needed in many PICs to provide the institutional basis for progress in DRM, particularly in relation to integration with CCA. As noted in a 2012 report: “effective integration of CCA and DRM is based on the knowledge and commitment of individuals at the national level and on the ability of the responsible government agencies to work together closely” (UNISDR and UNDP, 2012: iii).

### Links between DRM and development:

- Some PICs struggle with enforcement of various regulatory instruments such as Environmental Impact Assessments and other mechanisms designed to integrate DRM and CCA into development planning.
- In some PICs, traditional land owners have legal rights to over-rule local government regulations (e.g. in Republic of Marshall Islands). This presents challenges if land owners are not aware of the links between some development practices and DRM/CCA issues.

### Limited Data:

- The lack of systematic data collection presents challenges in understanding baselines and trends.
- Limited data availability across a range of areas including past events and impacts, demographic data, weather and climate data and high resolution climate change projections all present challenges to planning and implementation of DRM/CCA initiatives.
- The lack of dedicated and skilled capacities for information and knowledge management to update and manage new and existing information systems (beyond ICT) and supporting ‘informed’ decision-making.

### Limited visibility of national DRM investments:

- National HFA Reviews have revealed some progress is occurring in terms of national investments in DRM and CCA. Greater transparency is needed to better capture these investments in a systematic approach, rather than the currently ad-hoc and often disorganised manner that currently exists.

# Future Outlook and Recommendations

Much can be celebrated in terms of the progress gained in DRM and CCA since 2009 in the Pacific. By reflecting on the achievements, it allows stakeholders to replicate what works in certain contexts. This supports the building of positive momentum which can assist with capacity building, enhancing confidence in leadership and developing a proactive mentality in capacity constrained environments. Conversely, it is equally important to reflect and learn from past mistakes. Stronger collaboration and more inclusive cooperation allows for the sharing of lessons and experience for the benefit of all stakeholders. Collaboration also reduces duplication of efforts – an important point considering limitations in capacity. The PDRMPN and its various working groups, the annual Pacific Platform for DRM Meetings, the Climate Change Round Table and other related regional mechanisms provide a few examples of important platforms for regional cooperation to take place.



The Pacific region has been highly proactive in efforts to practically integrate DRM and CCA at the national level, and discussions are continuing regarding an integrated regional framework. This approach will therefore provide countries with more strategic support in attempts to further progress DRM and CCA. Further recommendations include:

Governance and institutional arrangements:

- Continue efforts to progress DRM and CCA through integrated approaches at both the national level (through JNAPs or similar), sub-national and the regional level, for example through the proposed integrated DRM and CCA framework.
- Regional partners to continue to support PICs in their efforts to develop or maintain appropriate governance and institutional arrangements that support integrated DRM and CCA efforts according to the unique situations of all PICs.
- Regional partners to continue to encourage and support an inclusive approach to national DRM and CCA decision making bodies, with genuine participation from key government ministries, local government representatives, NGOs, civil society and the private sector.

Recognise inherent capacity limitations:

- Provision of strategic and coordinated in-country engagements from PDRMPN and development partners that address the priority needs is recommended. New initiatives need to acknowledge existing programmes and capacity gaps.
- Existence of a single national body that oversee DRM and CCA initiatives as a joint coordination mechanism can assist with information sharing, coordination and monitoring and evaluation of initiatives addressing similar issues.
- Recognition of limited human resource capacity and high staff turnover through ongoing succession planning in key agencies (e.g. NDMOs) and capacity building through counterparts / internships / mentoring.

Support community-based approaches to DRM and CCA:

- Support community-based approaches to DRM and CCA and strengthen the capacity of the CBDRM Working Group to better coordinate CBDRM projects and approaches and to share lessons learned and insight gained from such initiatives across the region.

Build on existing mechanisms, past successes and lessons learned:

- Learn from the success of online communities (e.g. Pacific Solution Exchange) and draw upon the well-established nature of Pacific Disaster Net (PDN – [www.pacificdisaster.net](http://www.pacificdisaster.net)) with the use of Forums to encourage discussions, information sharing, capacity building and support. Alignment with the PDRMPN working groups would further establish these groups as key leaders in the region. Having national representatives from various PICs as co-leads of the working groups would assist with capacity building and leadership development.
- Encourage and maintain efforts to embrace or revitalise traditional knowledge and coping mechanisms across the region for reasons relating to cultural, environmental, social and economic sustainability.



# REFERENCES





Ambroz, A., 2008. An economic feasibility assessment of lagoon dredging in Funafuti, Tuvalu. SOPAC Science, Technology and Resources Network (STAR). Available at: <http://www.sopac.org/sopac/docs/nre/An%20economic%20feasibility%20assessment%20of%20lagoon%20dredging%20in%20Funafuti,%20Tuvalu.pdf>

Ambroz, A., 2009. Ba Floods: Economic costs of January 2009. SOPAC Technical Report 425. SOPAC, UNDP, Fiji Red Cross Society. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/FJI\\_Ba\\_FL\\_2009\\_SOPACTR425\\_economiccosts.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/FJI_Ba_FL_2009_SOPACTR425_economiccosts.pdf)

Ambroz, A., 2011. Least-cost analysis of water supply options in Niue. Integrated Water Resource Management Technical Report. SOPAC Technical Report 447 September 2011. Available at: <http://ict.sopac.org/VirLib/TR0447.pdf>

Australian Bureau of Meteorology and CSIRO, 2011. Climate Change in the Pacific: Scientific Assessment and New Research. Volume 1: Regional Overview. Volume 2: Country Reports. Available at: <http://www.cawcr.gov.au/projects/PCCSP/publications.html>

Bonte-Grapentin, M., 2009. Technical Assessment of the Flooding in Western Guadalcanal, 30 January 2009. SOPAC 2009.

Freshwater, A., and Talagi, D., 2011. Preliminary Overview of Desalination in Pacific Island Countries. SOPAC Technical Report 437. Available at: <http://www.sopac.org/sopac/docs/nre/An%20economic%20feasibility%20assessment%20of%20lagoon%20dredging%20in%20Funafuti,%20Tuvalu.pdf>

FSPI, 2011. Views From the Frontline 2011. Foundation of the Peoples of the South Pacific International.

Gerber, F., 2010a. An Economic Assessment of Drinking Water Safety Planning Koror-Airai, Palau.

SOPAC Technical Report 440. Available at: <http://www.pacificwater.org/userfiles/file/water%20publication/TR440%20final.pdf>

Gerber, F., 2010b. A Preliminary Economic Assessment of Integrated Water Resources Management: Laura, Republic of the Marshall Islands. SOPAC Technical Report 438. Available at: <http://ict.sopac.org/VirLib/TR0438.pdf>

Gerber, F., P. Holland and P.N. Lal 2011. Assessing the social and economic value of climate change adaptation in the pacific region- A case study on water quality, quantity and sanitation improvements as an adaptation to climate change, Tuvalu. A background case study for IUCN's report, Climate Change Adaptation in the Pacific: Making Informed Choices, prepared for the Australian Department of Climate Change and Energy Efficiency (DCCEE), IUCN, Suva, Fiji.

Gero, A., Méheux, K. and Dominey-Howes, D., 2010. Disaster risk reduction and climate change adaptation in the Pacific: The challenge of integration. ATRC-NHRL Miscellaneous Report 4. Available at: [http://www.nhrl.unsw.edu.au/downloads/UNSW\\_DRR\\_and\\_CCA\\_in\\_the\\_Pacific.pdf](http://www.nhrl.unsw.edu.au/downloads/UNSW_DRR_and_CCA_in_the_Pacific.pdf)

Government of the Cook Islands, 2011. National progress report on the implementation of the Hyogo Framework for Action (2009 - 2011). Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/COK\\_2011\\_National\\_HFA\\_progress.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/COK_2011_National_HFA_progress.pdf)

Government of the Cook Islands, 2012. Joint National Action Plan for Disaster Risk Management

Climate Change Adaptation (JNAP) 2011- 2015. Emergency Management Cook Islands and Climate Change Cook Islands, Office of the Prime Minister, Rarotonga, Cook Islands.

Government of Fiji, 2011. Fiji: National progress report on the implementation of the Hyogo Framework for Action (2009 - 2011). Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/FJI\\_2011\\_National\\_HFA\\_progress.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/FJI_2011_National_HFA_progress.pdf)

Government of Republic of the Marshall Islands, 2011. National progress report on the implementation of the Hyogo Framework for Action (2009 - 2011) Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/MHL\\_2011\\_NationalHFA\\_progress.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/MHL_2011_NationalHFA_progress.pdf)

Government of Samoa, 2011. National Progress Review Report (Final) : On the Implementation of the Hyogo Framework for Action (HFA) & Pacific Regional DRM Framework for Action (RFA) ; Progress Review Cycle: 2009 – 2011. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/WSM\\_2011\\_National\\_review\\_progress.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/WSM_2011_National_review_progress.pdf)

Government of Solomon Islands, 2011. National progress report on the implementation of the Hyogo Framework for Action (2009 - 2011). Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/SLB\\_2011\\_National\\_HFA\\_progress.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/SLB_2011_National_HFA_progress.pdf)

Government of Tuvalu, 2012. Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management, 2012–2016. Available at: [http://www.sprep.org/attachments/Climate\\_Change/Tuvalu\\_National\\_Strategic\\_Action\\_Plan\\_for\\_Climate\\_Change\\_and\\_Disaster\\_Risk\\_Management\\_2012\\_-\\_2016\\_Eng\\_Translation.pdf](http://www.sprep.org/attachments/Climate_Change/Tuvalu_National_Strategic_Action_Plan_for_Climate_Change_and_Disaster_Risk_Management_2012_-_2016_Eng_Translation.pdf)

Government of Vanuatu, 2011. National progress report on the implementation of the Hyogo Framework for Action (2009-2011). Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/VUT\\_2011\\_National\\_HFA\\_progress.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/VUT_2011_National_HFA_progress.pdf)

Holland, P., 2008. Economic analysis of flood warning in Navua, Fiji. EU EDF 8 – SOPAC Project Report 122. Available at: <http://ict.sopac.org/VirLib/ER0122.pdf>

Holland, P., 2009. Nadi Floods: Economic costs of January 2009. SOPAC Technical Report 426. UNDP, Fiji Red Cross Society. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/FJI\\_Nadi\\_FL\\_2009\\_SOPACTR426\\_economiccosts.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/FJI_Nadi_FL_2009_SOPACTR426_economiccosts.pdf)

Kingdom and Tonga, 2010. Joint National Action Plan on climate change adaptation and disaster risk management 2010 - 2015: The Kingdom of Tonga. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/TON\\_2010\\_2015\\_NAP\\_DRM.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/TON_2010_2015_NAP_DRM.pdf)

Lal, P.N., Singh, R. and Holland, P., 2009. Relationship Between Natural Disasters and Poverty: A Fiji Case Study. SOPAC Miscellaneous Report 678. A report prepared for the United Nations International Strategy for Disaster Reduction Secretariat's 2009 Global Assessment Report on Disaster Reduction.

Pacific Centre for Environment and Sustainable Development (PACE SD), 2011. Community-based adaptation to climate change: A review of good practices in the Pacific. University of the South Pacific, 2011.

SOPAC, 2008. Disaster Risk Reduction and Disaster Risk Management: A Regional Framework for Action. SOPAC Miscellaneous report 613. Available at: <http://www.pacificdisaster.net/pdnadmin/data/original/mr0613.pdf>

SOPAC, 2010. SOPAC Member Countries National Capacity Assessments: Tsunami Warning and Mitigation Systems ; consolidated regional report. Consolidated Regional Report. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/BOM\\_2011\\_TS\\_Capacity\\_assessment.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/BOM_2011_TS_Capacity_assessment.pdf)

SOPAC, 2011. Key Outcomes of the 3rd Session of the Pacific Platform for Disaster Risk Management. Auckland, New Zealand, 1-5th August. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/PPDRM\\_2011\\_KeyOutcomes\\_Final030911.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/PPDRM_2011_KeyOutcomes_Final030911.pdf)

Talagi, D., 2011. An Economic Assessment of Water Safety Planning: Niue. SOPAC Technical Report 443 April 2011. Available at: <http://ict.sopac.org/VirLib/TR0443.pdf>

UNISDR and UNDP, 2012. Disaster Risk Reduction and Climate Change Adaptation in the Pacific: An Institutional and Policy Analysis. Suva, Fiji: UNISDR, UNDP, 76pp.

Woodruff, A., 2008. Samoa Technical Report – Economic Analysis of Flood Risk Reduction Measures for the Lower Vaisigano Catchment Area. EU-SOPAC Project Report 69g. Available at: <http://www.pacificwater.org/userfiles/file/IWRM/Toolboxes/financing%20IWRM/Samoa.pdf>

World Bank, GFDRR and SOPAC, 2010a. Reducing the risk of disasters and climate variability in the Pacific Islands: Republic of Fiji country assessment. Republic of Fiji country assessment. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/FJI\\_GFDRR\\_assessment.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/FJI_GFDRR_assessment.pdf)

World Bank, GFDRR and SOPAC, 2010b. Reducing the risk of disasters and climate variability in the Pacific Islands: Republic of the Marshall Islands country assessment. Republic of the Marshall Islands country assessment. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/MHL\\_GFDRR\\_assessment.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/MHL_GFDRR_assessment.pdf)

World Bank, GFDRR and SOPAC, 2010c. Reducing the risk of disasters and climate variability in the Pacific Islands: Solomon Islands country assessment. Solomon Islands country assessment. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/SLB\\_GFDRR\\_assessment.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/SLB_GFDRR_assessment.pdf)

World Bank, GFDRR and SOPAC, 2010d. Reducing the risk of disasters and climate variability in the Pacific Islands: Papua New Guinea country assessment. Papua New Guinea country assessment Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/PNG\\_GFDRR\\_assessment.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/PNG_GFDRR_assessment.pdf)

World Bank, GFDRR and SOPAC, 2010e. Reducing the risk of disasters and climate variability in the Pacific Islands: Republic of Vanuatu country assessment. Republic of Vanuatu country assessment. Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/VUT\\_GFDRR\\_assessment.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/VUT_GFDRR_assessment.pdf)

World Bank, GFDRR and SOPAC, 2010f. Reducing the risk of disasters and climate variability in the Pacific Islands: Republic of Kiribati country assessment. Republic of Kiribati country assessment Available at: [http://www.pacificdisaster.net/pdnadmin/data/original/KIR\\_GFDRR\\_assessment.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/KIR_GFDRR_assessment.pdf)

World Bank, 2012. Acting today for Tomorrow: a Policy and Practice Note for Climate and Disaster Resilient Development in the Pacific Islands Region. The World Bank and GFDRR. Available at: <http://www.gfdrr.org/gfdrr/node/1212>



# APPENDIX

## SUMMARY OF HYOGO FRAMEWORK FOR ACTION



**PRIORITY FOR ACTION 1: Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation**

- a. Core Indicator 1: National policy and legal framework for disaster risk reduction exists with decentralised responsibilities and capacities at all levels
- b. Core Indicator 2: Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels
- c. Core Indicator 3: Community participation and decentralisation are ensured through the delegation of authority and resources to local levels
- d. Core Indicator 4: A national multi-sectoral platform for disaster risk reduction is functioning.

**PRIORITY FOR ACTION 2: Identify, assess and monitor disaster risks and enhance early warning**

- a. Core Indicator 1: National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors
- b. Core Indicator 2: Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities.
- c. Core Indicator 3: Early warning systems are in place for all major hazards, with outreach to communities
- d. Core Indicator 4: National and local risk assessments take account of regional /trans-boundary risks, with a view to regional cooperation on risk reduction.

**PRIORITY FOR ACTION 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels**

- a. Core Indicator 1: Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing systems, etc.)
- b. Core Indicator 2: School curricula, education material and relevant trainings include disaster risk reduction and recovery concepts and practices
- c. Core Indicator 3: Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened
- d. Core Indicator 4: Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities

**PRIORITY FOR ACTION 4: Reduce the underlying risk factors**

- a. Core Indicator 1: Disaster risk reduction is an integral objective of environment related policies and plans, including for land use, natural resource management and adaptation to climate change
- b. Core Indicator 2: Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk
- c. Core Indicator 3: Economic and productive sectoral policies and plans have been implemented to reduce the vulnerability of economic activities
- d. Core Indicator 4: Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes
- e. Core Indicator 5: Disaster risk reduction measures are integrated into post-disaster recovery and rehabilitation processes
- f. Core Indicator 6: Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure

**PRIORITY FOR ACTION 5: Strengthen disaster preparedness for effective response at all levels**

- a. Core Indicator 1: Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place
- b. Core Indicator 2: Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programmes
- c. Core Indicator 3: Financial reserves and contingency mechanisms are in place to support effective response and recovery when required
- d. Core Indicator 4: Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews





Applied Geoscience and Technology Division (SOPAC)  
Private Mail Bag, GPO Suva, Fiji  
Telephone: (679) 338 1377  
Fax: (679) 337 0040  
[www.pacificdisaster.net](http://www.pacificdisaster.net)  
[www.sopac.org](http://www.sopac.org)

