

2010

Mainstreaming Climate Change  
into National Development  
Planning – A Training Manual

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## List of Abbreviations and Acronyms

ADB	Asian Development Bank
AECEN	Asian Environmental Compliance and Enforcement Network
CARB	California Air Resources Board
CBDRM	community-based disaster risk management
CCIP	Climate Change Implementation Plan
CDM	Clean Development Mechanism
CEDRA	climate change and environmental degradation risk and adaptation assessment
CHARM	Comprehensive Hazard and Risk Management
CO <sub>2</sub>	carbon dioxide
COBP	country operations business plan
COPRAP	child-oriented participatory risk assessment and planning
CPS	Country Partnership Strategies
CRISTAL	community-based risk screening tool – adaptation and livelihoods
CROP	Council of Regional Organizations of the Pacific
CVA	climate vulnerability and adaptation
CVCA	climate vulnerability and capacity analysis
Danida	Danish International Development Agency
ECA	Economics of Climate Adaptation Working Group
EEPSEA	Economy and Environment Program for South East Asia
EIA	environmental impact assessment
EIRR	economic internal rate of return
EU	European Union
EVI	environmental vulnerability index
FIRR	financial internal rate of return
FSM	Federated States of Micronesia
GDP	gross domestic product
GEF	Global Environment Facility
GIS	geographic information system
GHG	greenhouse gases
IEE	initial environmental examination
IIED	International Institute for Environment and Development
IPCC	Intergovernmental Panel on Climate Change
NAPA	National Adaptation Programme of Action
NCEA	National Commission on Environmental Assessment, Netherlands
NCSA	National Capacity Self Assessment
NGO	nongovernmental organization
OECD	Organisation for Economic Cooperation and Development
PACC	Pacific Adaptation to Climate Change project
PADR	participatory assessment of disaster risk
PCVA	participatory capacities and vulnerabilities assessment

PICT	Pacific Island Countries and Territories
PIFACC	Pacific Islands Framework for Action on Climate Change 2006-2015
PVA	participatory vulnerability assessment
REDD	reduced emissions from deforestation and forest degradation in developing countries
RIVAMP	Risk and Vulnerability Assessment Methodology Development Project
SARD	systemic approach to rural development
SEA	strategic environmental assessment
SIDS	small island developing states
SOPAC	Pacific Islands Applied Geoscience Commission,
SPREP	Secretariat of the Pacific Regional Environment Programme
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WACC	weighted average cost of capital

## **1. Background**

Pacific Island countries and territories (PICT)<sup>1</sup> are aware that climate change presents significant and growing risks to their sustainable development, including possible loss of some small atoll islands that are barely above sea level. PICTs have been among the strongest advocates globally to argue for increased, coordinated international effort to reduce greenhouse gas (GHG) emissions and their plight has been recognized in ongoing global climate change negotiations. With the support of various development partners, the PICTs have also been active in developing climate change mitigation and adaptation strategies.

The Pacific Islands Framework for Action on Climate Change 2006-2015 (PIFACC) was endorsed by leaders in 2005. In 2006, the leaders stressed the importance of implementing PIFACC at the national level along with related regional plans such as the Regional Framework for Action on Disaster Risk Reduction and Disaster Management (2005-2015), and these regional priorities have been incorporated in the overall Pacific Plan.

Both PIFACC and the Regional Framework for Action on Disaster Risk Reduction and Disaster Management include strategies for mainstreaming climate change issues into national planning and budgeting processes, and improved sectoral decision making, to ensure systematic and coordinated climate change programmes. In-country capacity to implement these regional initiatives, however, is limited and the Council of Regional Organizations of the Pacific (CROP) agencies and development partners have been requested to assist. This training manual is the starting point for developing a comprehensive programme of capacity strengthening in the area of mainstreaming climate change into national planning and budgeting processes.

## **2. Objectives of the Training Course**

This training manual is a companion document to the draft “Mainstreaming Climate Change – a Guidance Manual for the Pacific Islands Countries and Territories” prepared by the Secretariat of the Pacific Regional Environment Programme (SPREP), and both documents are intended to be used together.

The principal objective of the training manual is to provide an introduction to mainstreaming climate change into development planning for high level government officials, the private sector and nongovernmental organizations (NGO). It is designed as a 2-day residential training course, based around case studies and documented guidance material readily available from various development partners. It is not intended as a training course for community participation or as part of a school or university curriculum, although it could be modified to cater for this use,

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<sup>1</sup> PICTs refers to American Samoa, Cook Islands, Fiji Islands, French Polynesia, Guam, Kiribati, Commonwealth of the Northern Marianas, Marshall Islands, Federated States of Micronesia, Nauru, New Caledonia, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna.

if desired. The intended outcome of the training course is to convince key decision makers that it is not only desirable to mainstream climate change into national development planning and budgeting but also to illustrate that there is a wide variety of tools and guidance on how to use those tools, which will help to make mainstreaming become a routine government activity.

### 3. Content of the Training Course

The proposed training course is made up of 7 main modules (Table 1), with an 8<sup>th</sup> module designed to recapitulate and discuss next steps.

**Table 1 Course Outline**

<b>Course Module Title</b>	<b>Synopsis</b>
1. Introduction to Climate Change Science	A brief introduction to climate change concepts such as the greenhouse effect, greenhouse gases, climate modeling, downscaling, predicted climate change impacts, and dealing with uncertainty.
2. Vulnerability and Risk Assessment	The concepts of vulnerability, natural hazards, resilience, risk assessment, disaster risk reduction, disaster management, and their connection to climate change. How to assess which areas should be given priority for adaptation measures.
3. Integrating Climate Change into National Plans	Examination of existing plans and the extent to which they incorporate climate change responses. Use of case studies to illustrate how to integrate climate change into national development plans.
4. Strategic Environmental Assessment (SEA) of National Policies and Programmes	Introduction to the use of SEA as an upstream planning tool and incorporation of climate change considerations into SEAs.
5. Integration of Climate Change into National Budgets	Examination of existing budgets and the extent to which they incorporate climate change responses. Use of case studies to illustrate how to integrate climate change into national budgets. Introduction to recent developments in climate financing and the economic costs of adaptation.
6. Climate Proofing Projects	Examination of project planning tools such as environmental impact assessment (EIA) to integrate climate change considerations into project design.
7. Community Participation	Explanation of community participation and consultation processes and the need for increased community resilience.

#### 4. Course Schedule

The training course is designed to occupy 2 days and one night (Table 2), but could be modified if a longer period is available. The first day is mostly in the form of lectures, although the final session on SEA sets up a homework exercise on the first night. The second day is mostly based on small group work, learning from each other and from various case studies. The course facilitator, however, may decide to alter the balance between lecture styles and group work, depending on the background and prior knowledge of the participants.

**Table 2 Course Schedule**

<b>Course Module Title</b>	<b>Recommended Duration</b>
1. Introduction to Climate Change Science	Day 1 – 9.00 am to 10.30 am, then coffee break
2. Vulnerability and Risk Assessment	Day 1 – 11.00 am to 12.30 pm, then lunch break
3. Integrating Climate Change into National Plans	Day 1 – 2.00 pm to 3.30 pm, then coffee break
4. Strategic Environmental Assessment of National Policies and Programmes	Day 1 – 4.00 pm to 5.30 pm, with homework assigned (2-3 hours) Day 2 – 8.30 am to 9.00 am report to plenary
5. Integration of Climate Change into National Budgets	Day 2 - 9.00 am to 10.30 am, then coffee break
6. Climate Proofing Projects	Day 2 - 11.00 am to 12.30 pm, then lunch break
7. Community Participation	Day 2 - 2.00 pm to 3.30 pm, then coffee break
8. Recapitulation/Discussion	Day 2 – 4.00 pm to close

#### 5. Course Participants

The course has been designed primarily for senior government officials from agencies other than the main environment agency (although the environment agency is likely to provide resource persons). Nevertheless, with some modifications it could also be usefully applied to the private sector, local government, academia (as a “train the trainers” programme), and NGOs. It is assumed that the participants will have relatively little knowledge of mainstreaming climate change into development planning, but they may have had some experience in mainstreaming other policy measures like disaster risk reduction or public health.

Participant selection will need to be fairly rigorous so that each trainee is more or less equivalent in terms of prior experience and knowledge. Accordingly, participant biodata will be submitted to the course organizers at least two weeks prior to the course date, so that an appropriate group of participants can be selected and the course can be tailored to their needs. A needs assessment survey will be circulated to all potential participants and attendance will be contingent on completing this questionnaire.

## **6. Profile of Trainers**

The training should be delivered by a team of trainers drawn from various development partners and academic institutions with expertise on climate science, ecosystem and environmental management, impact assessment, and financial management. Trainers are expected to have had experience of working closely with governments at national and sub-national levels in various countries in the Pacific region, as well as previous training experience.

## **7. User Guide to the Training Manual**

The individual training modules can be combined in various ways. For example, planning officials may be most interested in SEA and EIA, sector agency officials may be interested in climate proofing projects, and finance officials may be most interested in integrating climate change into national budgets. Therefore, either some modules may be dropped or reduced in coverage, while others are given more detailed treatment, based on the prior needs analysis of the participants. The course is designed for a two-day period and it is not recommended that any shorter duration be considered, given the enormous ground that the course needs to cover. Depending on resource and time constraints, however, it would be possible to expand the training course to extend over one week, with much more emphasis on group exercises rather than lecture room training.

## **8. Training Modules**

### **8.1 Introduction to Climate Change Science**

#### **8.1.1 Module Learning Objectives**

On completion of this module, participants will be expected to have gained a rudimentary knowledge of the science behind climate change and its potential impacts, and be enthusiastic to learn more. Participants should be able to answer the following questions:

- (i) What is the greenhouse effect and why is it important for all life on Earth?
- (ii) What are the main greenhouse gases (GHG) and why are they equated to carbon dioxide (CO<sub>2</sub>) equivalents?

- (iii) What were pre-industrial levels of GHGs, what are current levels, and what is the current rate of increase?
- (iv) What are predicted future levels of GHGs under various climate change scenarios and why is there so much uncertainty?
- (v) Why are coupled atmospheric and oceanic models so important and why do different global models give different results?
- (vi) Why is it so difficult to downscale global climate change models to a smaller jurisdictional level that is important for development planners?
- (vii) What are the general predictions for future surface and sea temperatures, sea level rise, frequency and severity of extreme weather events, ocean acidification, precipitation, and other physical manifestations of climate change in the Pacific islands region?
- (viii) What are the predicted implications for these changes in climate-related conditions on agriculture and food security, health, tourism, human settlements and infrastructure, water resources, disaster risk reduction and physical security, migration, biodiversity, and livelihoods in the Pacific Islands region?
- (ix) Why is it important to start mainstreaming these potential impacts into national development planning?

### **8.1.2 Module Content**

**Part 1** – A one hour university style lecture on the science and implications of climate change by a specialist in the field of meteorology or climate science, covering:

- (i) Past and current climate conditions in the Pacific Islands region and the evidence for ongoing climate change;
- (ii) Climate models and their strengths and weaknesses, including uncertainty associated with downscaling to localized levels;
- (iii) Predictions for future climate conditions globally and in the Pacific Islands region, as well as likely variations between and within countries;
- (iv) The evidence for future biophysical impacts of climate change and the ability of species, including humans, to adapt to the new conditions;
- (v) The implications of these changes in climate for most human activities and well-being; and
- (vi) How to address the remaining uncertainties about future climate conditions, without wasting effort and resources.

**Part 2** – A multiple choice quiz on the content of Part 1 (20 minutes), marked by the person sitting next to the participant, followed by 10-15 minutes of discussion among the participants, along with questions to the presenter. The most common errors among the participants will be noted by the course facilitator and addressed immediately after the lunch break.

### **8.1.3 Primary Resource Material**

SPREP's "Climate Variability and Change and Sea-level Rise in the Pacific Islands Region: A Resource Book for Policy and Decision Makers, Educators and other Stakeholders" was designed to (i) provide policy- and decision-makers in Pacific Island countries with a coherent, authoritative and readily accessible body of knowledge and resource materials on the region's resilience and vulnerability to climate and sea-level variability and change and identify a suite of proven and potential response options; and (ii) provide educators, outreach and related practitioners with an integrated and functional resource portfolio for use in formal education and professional development programmes and in support of efforts to enhance political and public awareness of the implications of global and regional variability and change for the Pacific Islands region.

The Resource Book comprises four main sections, reflecting the four principal dimensions of the climate issue – the changing climate, the observed and potential impacts, and the two broad categories of policy responses and actions, namely mitigation and adaptation. It is a little dated now but as a primer it gives an excellent introduction to the key issues surrounding climate change in the Pacific islands region.

### **8.1.4 Other Sources of Information**

The SPREP online clearinghouse of climate change information at <http://www.sprep.org/publication/climate.asp>.

The Intergovernmental Panel on Climate Change (IPCC) at [http://www.ipcc.ch/publications\\_and\\_data/publications\\_and\\_data.htm](http://www.ipcc.ch/publications_and_data/publications_and_data.htm).

The Climate List-serve at <http://climate-l.org>.

The UN Climate Gateway at <http://www.un.org/wcm/content/site/climatechange/gateway>.

A Climate Change Explorer tool that enables access to downscaled climate data at <http://www.weADAPT.org>.

Chapter 16 of IPCC Fourth Assessment Report: Small Islands - Mimura, N., L. Nurse, R.F. McLean, J. Agard, L. Briguglio, P. Lefale, R. Payet and G. Sem, (2007) Small islands. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 687-716.

UNFCCC (2005) Climate Change, Small Island Developing States. Climate Change Secretariat, United Nations Framework Convention on Climate Change, Bonn, Germany.

Tompkins, E., S. Nicholson-Cole, L.A. Hurlston, E. Boyd, G. Hodge, J. Clarke, G. Gray, N. Trotz, L. Varlack (2005) Surviving Climate Change in Small Islands – A Guidebook. Tyndall Centre for Climate Change Research, Norwich, UK.

## **8.2 Vulnerability and Risk Assessment**

### **8.2.1 Module Learning Objectives**

On completion of this module, participants will be expected to have gained a basic understanding of natural hazards and the risks they pose to communities and individuals, along with the existing and future vulnerability of Pacific Island communities and ecosystems to changing climate conditions. The participants will be expected to have shared their own experiences of extreme weather events or other natural hazards in their own communities and the impacts that these events had on those communities. They should be able to answer the following questions:

- (i) Why is the Pacific Islands region so susceptible to natural hazards and disasters?
- (ii) How can communities most at risk from climate change and other natural hazards be identified?
- (iii) How are the return periods of different types of extreme weather, such as cyclones, likely to change in future?
- (iv) Are Pacific Islands communities becoming more or less vulnerable to natural hazards, and why?
- (v) What are some of the traditional ways of coping with natural hazards and how have these practices changed over time?
- (v) What kinds of risk management practices, such as crop or flood insurance, will make Pacific Island communities less vulnerable and more resilient to the impacts of climate change?
- (vi) What are global best practices to map vulnerability to climate change conditions?
- (vii) How would an “all hazards” map assist development planners?

### **8.2.2 Module Content**

This module will be delivered by an expert with experience in coastal zone management and integration of future sea level rise predictions into coastal vulnerability assessments.

**Part 1** – Sharing of personal experiences of extreme events and natural hazards and the impact that such events have on local communities (20 minutes). Participants will be encouraged to give an extemporaneous snapshot of their own personal experiences, how it felt, and the impacts on their local community.

**Part 2** – Case study of World Bank coastal infrastructure management project in Samoa (1999-2008) (40 minutes). The Government of Samoa commissioned Beca International Consultants of New Zealand to lead a team developing a two stage national Coastal Infrastructure Management strategy. Management of land and resources in Samoa is very complex, and there is a delicate balance between the jurisdiction of central government and the autonomous rights of local villages which are protected in the national constitution. Beca's strategy focused on consultation and raising awareness in village communities. The team presented an easy-to-read strategy that showed the importance of managing infrastructure and resources to improve coastal hazard resilience; the emphasis was on support, education and a common vision. The second stage of the strategy involved Beca helping local village leaders and government representatives to prepare local Coastal Infrastructure Management Plans (known as CIM Plans). These guided the implementation of the strategy at the local level with an emphasis on a 'partnership' arrangement between Government and the local village. The project was completed over two stages. The first stage produced plans for 15 political districts covering 92 villages, and the second stage completed the remaining 26 districts, and 191 villages. In total more than 6,000 people, 8% of the resident adult population of the country were directly consulted and participated in the planning. The necessary documentation, including the CIM plans are online at <http://www.mnre.gov.ws/projects/siam-2/info.htm>.

**Part 3** – Facilitated discussion (30 minutes) on the September 2009 tsunami in Samoa (triggered by a magnitude 8.0 earthquake) and its impacts and whether full implementation of the coastal infrastructure management plans would have significantly reduced the damage costs and loss of life and livelihoods. The Pacific Tsunami Warning Centre (PTWC) said the quake struck at a depth of 33 km, some 190km from the capital, Apia (see analysis at <http://walrus.wr.usgs.gov/tsunami/samoa09/>), with tsunami runup reaching as high as 12 metres. Is the country now protected from a repeat event (or even one closer to Apia) or was vital infrastructure and housing replaced in the same hazardous locations? How can climate change adaptation plans be used in a disaster recovery phase?

### **8.2.3 Primary Resource Material**

Beca (2001) Coastal Infrastructure Management Project: CIM Strategy. Prepared for Government of Samoa by Beca International Consultants Ltd.

ECA (2009) Shaping Climate Resilient Development: A Framework for Decision Making. Economics of Climate Adaptation Working Group (Climate Works Foundation, GEF, European Commission, The Rockefeller Foundation, Standard Chartered Bank, Swiss Re, McKinsey). [http://www.mckinsey.com/App\\_Media/Images/Page\\_Images/Offices/SocialSector/PDF/ECA\\_Shaping\\_Climate%20Resilient\\_Development.pdf](http://www.mckinsey.com/App_Media/Images/Page_Images/Offices/SocialSector/PDF/ECA_Shaping_Climate%20Resilient_Development.pdf)

For additional background and analysis of the earthquake and subsequent tsunami refer to: <http://www.drgeorgepc.com/Tsunami2009Samoa.html>. For damage assessments by satellite imagery analysis refer to [http://unosat.web.cern.ch/unosat/asp/prod\\_free.asp?id=126](http://unosat.web.cern.ch/unosat/asp/prod_free.asp?id=126).

Cretegnny, L. (2010) The Economics of Adaptation to Climate Change: Samoa Case Study. Powerpoint presentation for EACC Country Workshop. World Bank, Washington DC.

#### **8.2.4 Other Sources of Information**

ADB (2005) Climate Proofing: A Risk-based Approach to Adaptation. Summary for Policy and Decision Makers. Asian Development Bank, Manila, Philippines.

ADB (2009) Natural Catastrophe Risk Insurance Mechanisms for Asia and the Pacific. Main Report. Asian Development Bank, Manila.

Adger, W.N., N. Brooks, G. Bentham, M. Agnew, S. Eriksen (2004) New Indicators of Vulnerability and Adaptive Capacity. Tyndall Centre for Climate Change Research, Norwich, UK.

Bettencourt, S., R. Croad, P. Freeman, J. Hay, R. Jones, P. King, P. Lal, A. Mearns, J. Miller, I. Pswarayi-Riddihough, A. Simpson, N. Teuatabo, U. Trotz, M. van Aalst (2006) Not If But When: Adapting to Natural Hazards in the Pacific Islands Region: A Policy Note. World Bank, Washington DC.

Dasgupta, S., B. Laplante, C. Meisner, D. Wheeler, J. Yan (2007) The Impact of Sea Level Rise on Developing Countries: A Comparative Analysis. World Bank Policy Research Working Paper 4136, World Bank, Washington DC.

Shorten, G., S. Goosby, K. Granger, K. Lindsay, P. Naidu, S. Oliver, K. Stewart, V. Titov, G. Walker (2003) Catastrophe Insurance Pilot Study, Port Vila, Vanuatu: Developing Risk-Management Options for Disasters in the Pacific Region. Pacific Islands Applied Geoscience Commission, Suva, Fiji.

### **8.3 Integrating Climate Change into National Plans**

#### **8.3.1 Module Learning Objectives**

Participants who complete this module should understand why it has been difficult to ensure that climate is fully integrated into national economic development plans, why cross-sectoral cooperation is comparatively rare, and why some governments have chosen to deal with climate change as a standalone issue. They should also gain a basic understanding of the steps needed to integrate climate change into national plans and the institutional reforms that may be necessary to ensure that this happens as a routine activity, rather than sporadically, driven by external assistance. The participants should be able to answer the following questions:

- (i) What are the benefits of integrating climate change into national economic development plans compared to dealing with climate change as a standalone issue?

- (ii) Why is cross-sectoral cooperation and coordination often difficult to achieve in a modern institutional environment?
- (iii) Why is there a need for a multi-agency task-force to integrate climate change into national development plans?
- (iv) Why is high-level political support necessary to ensure that climate change is integrated into national economic development plans?
- (v) Why are standalone action plans, like NAPAs or disaster risk reduction plans, often not implemented?
- (vi) What are the main steps in integrating climate change into national development plans and what tools are useful?

### **8.3.2 Module Content**

The experience of Vanuatu in attempting to mainstream climate change and disaster management into its medium term national economic development plan is evidence of the root and branch approach that must be taken to mainstreaming. Vanuatu, along with most other PICTs, released its Disaster Risk Reduction and Disaster Management Action Plan (2006-2016), which has a specific objective to “integrate disaster risk reduction into policies, plans and programs of all ministries and departments and all levels of government in order to assist communities reduce the risk and vulnerability to disasters.” Unfortunately the main medium term economic development plan, the Priorities and Action Agenda (2005-2007) had recently been endorsed by the Council of Ministers but disaster risk reduction and disaster management was not sufficiently reflected in that plan, as the Action Plan came several months later. Recognizing this defect, the Government requested a Supplementary Priorities and Action Agenda, with an additional strategic priority of safety, security and resilience. This Supplementary Priorities and Action Agenda found that because disaster management is a cross-cutting issue, like climate change, significant changes needed to be made to almost every chapter of the national economic plan. It was intended that when the next Priorities and Action Agenda was formulated in 2006, then the changes provided in the Supplementary document would be fully integrated.

Accordingly, this module uses a case example of trying to integrate disaster risk reduction and disaster management into Vanuatu’s national economic development plan, the Priorities and Action Agenda (PAA) 2006-2015, to illustrate the difficulties of ensuring that mainstreaming efforts are finally endorsed at the political level. Doing the groundwork on mainstreaming is important but equally important is obtaining political support. The module will be presented by an expert from the Pacific Disaster Risk Management Network involved in preparation of the Supplementary to the PAA.

**Part 1** – Presentation on Vanuatu’s PAA 2006-2015, Supplementary for Mainstreaming Disaster Risk Reduction and Disaster Management, and the Disaster Risk Reduction and Disaster Management National Action Plan (2006-2016) (40 minutes). Focus will be on the process rather than the content of each document.

**Part 2** – Small group discussion (30 minutes) on how the Pacific Disaster Risk Management Network and government partners could have ensured that Vanuatu's political leaders were willing to adopt a fully integrated disaster risk reduction and disaster management plan into the national Priorities and Action Agenda.

**Part 3** – Report back to plenary and open discussion on the implications for mainstreaming the National Adaptation Programme of Action (NAPA) (20 minutes)

### **8.3.3 Primary Resource Material**

Vanuatu's Priorities and Action Agenda (PAA) 2006-2015

[http://www.usaid.gov/au/publications/pdf/vanuatu\\_agenda.pdf](http://www.usaid.gov/au/publications/pdf/vanuatu_agenda.pdf)

Vanuatu's National Disaster Management Act No. 31 of 2000

Vanuatu Disaster Risk Reduction and Disaster Management National Action Plan (2006-2016)

Supplementary for Mainstreaming Disaster Risk Reduction and Disaster Management

[http://www.preventionweb.net/files/9259\\_vanuatudismanag.pdf](http://www.preventionweb.net/files/9259_vanuatudismanag.pdf)

Government of Vanuatu (2004a) National Disaster Plan Review. National Disaster Management Office, Port Vila, Vanuatu.

### **8.3.4 Other Sources of Information**

ADB (2007) Country Environmental Analysis. Asian Development Bank, Manila

Government of Vanuatu (2004b) National Adaptation Programme of Action. Port Vila, Vanuatu (<http://unfccc.int/resource/docs/napa/vut01.pdf>)

SOPAC (2003) EVI Country Profile Review – Vanuatu. SOPAC Miscellaneous Report 530, South Pacific Applied Geosciences Commission, Suva, Fiji.

SOPAC (2004a) Review of the Vanuatu Disaster Management Arrangements. Report prepared for Ministry of Internal Affairs. Pacific Applied Geosciences Commission, Suva, Fiji.

SOPAC (2004b) Disaster Risk Management in Marginal Communities of Port Vila, Vanuatu. SOPAC Joint Contribution Report 14, Pacific Applied Geosciences Commission, Suva, Fiji.

## **8.4 Strategic Environmental Assessment of National Policies and Programmes**

### **8.4.1 Module Learning Objectives**

The course participants will learn how to use one of the most valuable mainstreaming tools, SEA, at the plan, programme and policy level and apply it to a current national economic plan. The participants will be asked to prepare a 5-page rapid SEA on the plan, through the lens of climate change, through a small group exercise overnight, with a report back to the plenary on Day 2. Participants are not expected to become experts in SEA overnight but they are expected to understand how the structured process of an SEA may help them in mainstreaming climate change into a national economic development plan. The course facilitator for this module will be an expert in environmental impact assessment (EIA) and SEAs.

Participants will be expected to have a preliminary understanding of the following questions and an interest to follow them up with further reading and training:

- (i) What is the difference between an EIA and a SEA?
- (ii) Why is it necessary to have conducted SEAs at the upstream planning level, before specific economic development projects are identified?
- (iii) Why are scenarios so important in conducting SEAs and where can appropriate climate change scenarios be sourced?
- (iv) How does application of an SEA assist in mainstreaming climate change into national economic development plans?
- (v) What is the range of skills and resources needed to conduct competent SEAs?

#### **8.4.2 Module Content**

This module will cover SEA as a family of tools, rather than a blueprint. It will explain the basic elements of SEA as defined by the OECD/DAC or UNECE SEA Protocol. It will then outline the key components of simple to complex SEAs and the kinds of circumstances in which an SEA is a valuable approach.

**Part 1** – Introduction to SEA (40 minutes). Lecture by an expert in SEA followed by a brief discussion to ensure that the basic concepts are understood by the participants. Coverage will include the use of scenarios to define a range of possible alternatives, the need for extensive public consultation, identification of and description of the types of impacts expected, comparison of the impacts of the different scenarios, different systems for ranking and displaying the analysis, identification of priority areas for mitigation measures, and development of an action plan accompanied by a robust monitoring and evaluation system.

**Part 2** – Small group work on a rapid SEA for a national economic plan, through the lens of climate change (2-3 hours, including some homework) covering the following topics:

- Main strategic alternatives considered in the economic plan and how they were identified

- The extent to which possible climate change impacts were identified in the choice of alternatives to be considered
- Comparison of the significant environmental effects of the alternatives, with a focus on climate change impacts
- Other alternatives considered, why they were rejected, and whether climate change considerations would have altered those choices
- Any proposed mitigation and adaptation measures built into the existing plan and how this might be changed if climate change had been thoroughly incorporated.

**Part 3** - A brief SEA, of no more than 5 pages will be prepared overnight, and reported back to the plenary before the commencement of Module 5.

#### **8.4.3 Primary Resource Material**

Current national economic development plans of the countries involved, provided they are available online.

King, P. (2005) A Rapid Assessment of Environmental Impacts of Economic Corridors in the Greater Mekong Subregion. Prepared for Worldwide Fund for Nature.

#### **8.4.4 Other Sources of Information**

CDB (2004) Sourcebook on the Integration of Natural Hazards into Environmental Impact Assessment: NHIA-EIA Sourcebook. Caribbean Development Bank, Bridgetown, Barbados.

CIDA (2004) Strategic Environmental Assessment of Policy, Plan and Program Proposals: CIDA Handbook. Canadian International Development Agency.

ICON (2001) SEA and Integration of the Environment into Strategic Decision-Making. Final Report to the European Commission. European Commission Contract No. B4-3040/99/136634/MAR/B4. Imperial College Consultants Ltd., UK.

Partidario, M. (2003) Strategic Environmental Assessment: Current Practices, Future Demands and Capacity-Building Needs: Course Manual. International Association for Impact Assessment – IAIA Training Courses. Lisbon, Portugal.

M. Schmidt, E. Joao, and E. Albrecht (2005) Implementing Strategic Environmental Assessment by Springer, ISBN 3-540-20562-4 (pdf.)  
[http://www.springer.com/cda/content/document/cda\\_downloaddocument/9783540205623-t1.pdf?SGWID=0-0-45-164891-p36521486](http://www.springer.com/cda/content/document/cda_downloaddocument/9783540205623-t1.pdf?SGWID=0-0-45-164891-p36521486)

UNECE (2007) Resource Manual to Support Application of the UNECE Protocol on Strategic Environmental Assessment. United Nations Economic Commission for Europe.

UNEP (2004) Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach, Hussein Abaza, DTIE-ETB, United Nations Environment Programme, Nairobi, Kenya (<http://www.unep.ch/etb/publications/EnvImpAss/textONUBr.pdf>)

World Bank (2001) Strategic Environmental Assessment in World Bank Operations: Experience to Date – Future Potential. World Bank, Washington DC.

## **8.5 Integration of Climate Change into National Budgets**

### **8.5.1 Module Learning Objectives**

Participants in this module will gain a better understanding of how national budgets are framed in Pacific islands countries, the macro-setting, the inputs provided by sector agencies, the setting of budget ceilings or caps, and the extent of political involvement in finalizing the budget. In addition, they will learn where the best entry points are for inserting climate change considerations, the typical costs of climate change adaptation and mitigation options, and the role of cost-benefit analysis in deciding on which projects to submit for central government funding. The balancing of internal and external financial resources will also be discussed. The module will be led by a financial management expert with experience in budget formulation in Pacific SIDS. At the end of the module, participants should be able to answer the following questions:

- (i) What is the role of sector agencies in formulating national budgets in the Pacific region?
- (ii) How do governments decide on the macro-settings for the budget, such as levels of borrowing, projected growth rates, trade balances etc.?
- (iii) Where are the potential entry points for injecting climate change considerations into the budget processes and who should take responsibility for this?
- (iv) What is the role of politicians in finalizing the budgets and why is it important for them to screen the budget to ensure that climate change is fully accommodated, according to national policy?
- (v) Why is important that expenditure on climate change responses that may be buried in sector budget line items are captured and reported?

### **8.5.2 Module Content**

Governments allocate scarce resources via budgets. So to ensure that financial resources are not wasted or misappropriated, best practices need to be applied (GFOA 1998). As the impacts of climate change may not be observable for many years into the future, there is a high risk that any attempt to appropriate funds for climate change mitigation or adaptation could be wasted. Therefore, it is recommended that “no-regrets” expenditures on climate change should be basic government policy in the Pacific region. This means that existing priority programmes in the

budget that also have climate change benefits should be given preference over standalone climate-related projects.

**Part 1** – Lecture on global best practice in budgeting and the best points of entry for climate change considerations, followed by an open discussion on budgeting problems in the Pacific Islands region and why it is difficult to mainstream climate change into current budget processes (40 minutes).

“Between 4 February and 8 March 2005, the Cook Islands experienced five damaging cyclones within a period of five weeks, four of which were assigned a severity rating in Category 5 and caused damage to homes and essential public infrastructure. The Government and its agencies provided early warning information dissemination, evacuation and emergency relief to the affected population with the support of international and regional relief agencies. Following the cyclones the Government assessed the physical damage but it lacked all of the capacity and resources to finance the immediate recovery and reinstatement of basic services. On 30 June 2005 the ADB approved a loan for the Cyclone Emergency Assistance Loan Project for the sum of US\$2.85 million, effective from the 14th July 2005. The loan was to mitigate social and economic impact of the cyclone damage by providing the necessary concessional resources to assist the Government implement a comprehensive recovery programme. The total cost of the CEA Project is estimated at US\$7.9 million.

The 2005 cyclones highlighted the need for a long-term national climate change adaptation strategy and an integrated infrastructure development plan which incorporates climate change adaptation concepts. The strategy and plan should include policies and priorities both to support economic and social development and protect the country’s basic infrastructure against weather-related impacts. As with most Pacific island states, the Cook Islands’ social infrastructure is ill-prepared against weather related vulnerability as highlighted under the Climate Change Adaptation Project for the Pacific. The inherent geographical vulnerability of the country to climate change can be ameliorated by initiating integrated infrastructure and social development, including human resources development. ***Consequently, there is a need for ‘climate proofing’ the country, that is, for enhancing the country’s adaptive capacity and resilience to climate change, including the impacts of extreme events (emphasis added).*** Strengthening disaster management and mitigation capacity will help to ensure that future social and infrastructure programs will incorporate climate change adaptation and mitigation strategies.....” (Taken from the Cyclone Emergency Assistance Loan Project Inception Report May 2006)

**Part 2** - This module (40 minutes) will examine a real world budget statement, for the Cook Islands, and in small groups attempt to answer the following questions:

(i) What is the long term perspective outlined by the budget statement and does it reflect the likely serious impact of climate change and extreme weather events on the Cook Islands economy?

(ii) In relation to climate change the budget statement notes “Building resilience to climate change - Climate change is a threat to our survival. We will continue our efforts in ensuring that our development takes into account the impacts of climate change. Efforts will be made to source and access funding mechanisms that will assist in climate proofing our infrastructure development.” Does the remainder of the budget statement implement this aspiration?

(iii) To what extent does the budget statement reflect the approach to climate change in the National Sustainable Development Plan (2007-2010)?

(iv) Given the opportunity to revise the budget statement to fully accommodate climate change considerations, what changes would you recommend to the Ministry of Finance and Economic Management?

**Part 3** – Feedback to plenary of small group findings (10-15 minutes).

### **8.5.3 Primary Resource Material**

ADB (2005) Proposed Loan and Technical Assistance Grant – Cyclone Emergency Assistance Project (Cook Islands). Asian Development Bank, Manila. Report and Recommendation of the President.

[http://www.mfem.gov.ck/index.php?option=com\\_content&view=article&id=9&Itemid=57](http://www.mfem.gov.ck/index.php?option=com_content&view=article&id=9&Itemid=57)

Bettencourt, S., R. Croad, P. Freeman, J. Hay, R. Jones, P. King, P. Lal, A. Mearns, J. Miller, I. Pswarayi-Riddihough, A. Simpson, N. Teuatabo, U. Trotz, M. van Aalst (2006) Not If But When: Adapting to Natural Hazards in the Pacific Islands Region: A Policy Note. World Bank, Washington DC.

Government of the Cook Islands (2007) Te Kaveinga Nui (Pathway for Sustainable Development in the Cook Islands) Living the Cook Islands Vision – a 2020 Challenge. National Sustainable Development Plan (2007-2010). Rarotonga, Cook Islands.

[http://www.mfem.gov.ck/index.php?option=com\\_rubberdoc&view=category&id=13&Itemid=48](http://www.mfem.gov.ck/index.php?option=com_rubberdoc&view=category&id=13&Itemid=48)

Government of the Cook Islands (2010) Cook Islands Budget Statement 2010/2011 -

[http://www.mfem.gov.ck/index.php?option=com\\_content&view=article&id=95&Itemid=47](http://www.mfem.gov.ck/index.php?option=com_content&view=article&id=95&Itemid=47)

GFOA (1998) Recommended Budget Practices: A Framework for Improved State and Local Government Budgeting. Government Finance Officers Association, National Advisory Council on State and Local Budgeting, Chicago, USA. Available online at: <http://www.gfoa.org/services/dfi/budget/RecommendedBudgetPractices.pdf>

Isaksen, J. (2005) The Budget Process and Corruption. U4 Anti-Corruption Resource Centre, Chr. Michelsen Institute, Bergen, Norway.

### **8.5.4 Other Sources of Information**

Campbell, J. (2000) Adapting to Climate Change: Incorporating Climate Change Adaptation into Development Activities in Pacific Island Countries – A Set of Guidelines for Policymakers and Development Planners. SPREP, Apia, Samoa.

DBSA (2009) What Works for Us: A South African Country Report on Tactics, Tools and Methods for Integrating Environment and Development. Development Bank of Southern Africa, Midrand, South Africa.

ECE (2010) Financing Global Climate Change Mitigation. ECE Energy Series No. 37, Economic Commission for Europe, Geneva.

Huxtable, J. and Yen, N.T. (2009) Mainstreaming Climate Change Adaptation: A Practitioner's Handbook. CARE International, Vietnam

IIED (2008) Taking Steps: Mainstreaming National Adaptation. Briefing. International Institute for Environment and Development, London, UK.

IIED (2010) Copenhagen's Climate Finance Promise: Six Key Questions. Briefing. International Institute for Environment and Development, London, UK.

King, P. and Wirutskulshai, U. (2009) Integration of Climate Change into National Planning in Asia-Pacific. Unpublished manuscript for the Sustainable Development Planning Network for Asia-Pacific (<http://www.SDplanNet-AP.org>)

OECD (2009) Integrating Climate Change Adaptation into Development Cooperation – Policy Guidance. Organisation for Economic Cooperation and Development, Paris, France.

UNDP (2010) Screening Tools and Guidelines to Support the Mainstreaming of Climate Change Adaptation into Development Assistance – A Stocktaking Report. United Nations Development Programme, New York.

UNEP (2006) Adaptation and Vulnerability to Climate Change: The Role of the Finance Sector. CEO Briefing, United Nations Environment Programme Finance Initiative, Nairobi, Kenya.

UNFCCC SBSTA (2010) Synthesis Report on Efforts Undertaken to Assess the Costs and Benefits of Adaptation Options, and Views on Lessons Learned, Good Practices, Gaps and Needs. United Nations Framework Convention on Climate Change Subsidiary Body for Scientific and Technological Advice, 32<sup>nd</sup> Session, Bonn, 31 May to 9 June 2010.

World Bank (2009) The Costs to Developing Countries of Adapting to Climate Change: New Methods and Estimates. The Global Report of the Economics of Adaptation to Climate Change Study, Consultation Draft. World Bank, Washington DC.

## **8.6 Climate Proofing Projects**

### **8.6.1 Module Learning Objectives**

Perhaps the simplest way to understand how climate change will alter procedures for almost all aspects of development is to examine how projects will need to be “climate-proofed” in future. Each sector will need to examine proposed projects in the context of sector plans, determine if they are likely to be affected by climate change in the life of the project, and for projects that are affected change the original design to cater for the climate change impacts. Participants in this module will gain a good understanding of how infrastructure projects, in particular, will need to undergo some design changes because of climate change considerations. The module will be led by an expert in mainstreaming climate change into the design of infrastructure projects. On the completion of the module, participants should be able to answer the following questions:

- (i) What is the life cycle of an infrastructure project and how will climate change impinge on the different stages of the life cycle?
- (ii) Why will old design parameters and standards need to be changed as climate conditions change over the next few decades?
- (iii) Why will some areas, such as low lying coastal zones, need to be reconsidered as desirable locations for development activities?
- (iv) Why will critical infrastructure, such as emergency escape routes, need to be designed to a higher standard than other infrastructure, and why will it be important to relocate emergency shelters, hospitals, and rescue services well away from vulnerable areas?
- (v) Why is comparison of cost-benefit ratios a good way to evaluate which alternative adaptation or mitigation measure is most suitable?
- (vi) What is the best way to include climate change considerations into project feasibility studies and EIAs?

### **8.6.2 Module Content**

In summarizing the need to climate proof projects, ADB states “Climate-related risks facing both the infrastructure projects and the communities are already considerable, but in all cases are projected to increase substantially as a result of increases in climate extremes and variability. For infrastructure projects, it is possible to avoid most of the damage costs attributable to climate change, and to do this in a cost-effective manner, if climate proofing is undertaken at the design stage of the project. Cost effectiveness can be further enhanced if environmental impact assessment (EIA) procedures require that all development be climate proofed (i.e., that climate proofing is part of best practice, as judged by the EIA procedures). Climate proofing communities can also be cost effective if planning and regulatory measures take into account both current and future climate-related risks” (ADB 2005).

Accordingly, the module will cover two main aspects of project design to cater for future climate change (i) changing engineering design standards at the project feasibility study stage; and (ii) integrating climate change into EIAs.

**Part 1** – Re-engineering project design to accommodate future climate conditions (45 minutes). In discussing the options for dealing with climate change in the design of a circumferential road around Kosrae, Federated States of Micronesia, it was found that retro-fitting design was more expensive than building in climate proofing at the design stage (ADB 2005). In small groups, participants will consider likely infrastructure projects in their own country and will come up with a short list of 10 possible design changes, and possibly consequent changes to engineering design standards, that may be needed to cope with climate change. One group will be requested to present their findings.

**Part 2** – Integrating climate change into EIAs (45 minutes). The Lae Port Development Project in Papua New Guinea is a fairly typical infrastructure project funded by a multilateral development bank. The Project includes construction of a tidal basin (700 m long and 400 m wide) with a dredged depth of 13 m below chart datum, a multipurpose berth (240 m long and 45–50 m wide), and terminal works including all buildings; storage area; roads; and drainage, water, electrical, and sewerage services. The tidal basin and berth are designed to accommodate vessels with an overall length of 200 m, beam of 32.2 m, and fully laden draft of 12 m. Flexibility is built in for extending the berth by another 150 m without incurring dredging cost” (ADB 2007). In the same small groups, the participants will examine the summary EIA and find 10 possible entry points where climate change should have been considered. As for Part 1, another group will be requested to present their findings to the plenary.

### **8.6.3 Primary Resource Material**

ADB (2005) Climate Proofing: A Risk-based Approach to Adaptation. Summary for Policy and Decision Makers. Asian Development Bank, Manila, Philippines.

ADB (2007) Papua New Guinea: Lae Port Development Project: Summary Environmental Impact Assessment. Asian Development Bank, Manila, Philippines. Available online at: <http://www.adb.org/Documents/Environment/PNG/40037-PNG-SEIA.pdf>

Campbell, J. (2000) Adapting to Climate Change: Incorporating Climate Change Adaptation into Development Activities in Pacific Island Countries – A Set of Guidelines for Policymakers and Development Planners. SPREP, Apia, Samoa.

UNDP (2010) Screening Tools and Guidelines to Support the Mainstreaming of Climate Change Adaptation into Development Assistance – A Stocktaking Report. United Nations Development Programme, New York.

### **8.6.4 Other Sources of Information**

ADB (2009) Mainstreaming Climate Change in ADB Operations: Climate Change Implementation Plan for the Pacific (2009-2015). Asian Development Bank, Manila, Philippines.

Agrawala, S. (2004) Mainstreaming Adaptation in Development Planning and Assistance. UNFCCC Adaptation Workshop, Bonn, 18 June 2004, Organisation for Economic Cooperation and Development, Paris, France.

Huxtable, J. and Yen, N.T. (2009) Mainstreaming Climate Change Adaptation: A Practitioner's Handbook. CARE International, Vietnam

Klein, R., S. Eriksen, L. Naess, A. Hammill, C. Robledo, K. O'Brien (2005) Portfolio Screening for Mainstreaming Adaptation to Climate Change, Paper presented at conference "Development Day", 3 December 2005, Montreal.

Miththapala, S. (2008) Integrating Environmental Safeguards into Disaster Management: A Field Manual. Vol. 1 Reference Material, Vol. 2 The Disaster Management Cycle. International Union for the Conservation of Nature, Colombo, Sri Lanka.

OECD (2009) Integrating Climate Change Adaptation into Development Cooperation – Policy Guidance. Organisation for Economic Cooperation and Development, Paris, France.

UNDP (2006) UNDP Environmental Mainstreaming Strategy: A Strategy for Enhanced Environmental Soundness and Sustainability in UNDP Policies, Programmes and Operational Processes. United Nations Development Programme, New York.

USAID (2007) Adapting to climate variability and change: A guidance manual for development planning. US Agency for International Development and Stratus Consulting, Washington.

## **8.7 Community Participation**

### **8.7.1 Module Learning Objectives**

Many, if not all, climate change adaptation measures need to be implemented at the local community level. "Adaptation will ultimately be a localised phenomenon. It will be driven by the need for people to adapt to the local manifestations and impacts of climate change, which will be mediated by geography and local physical, social, economic and political environments" (Brooks and Adger 2004). In many ways, local communities have been adapting to climate variables for generations, yet they are peculiarly ill-prepared to deal with climate change as a global issue over which they have little influence. The objective of this module is to ensure that participants understand the need to put people first in designing appropriate climate change responses, rather than merely dealing with the technical issues. Putting people first, of course, is a much less clear and sometimes conflict ridden process, as well as highly time consuming, but these should not be accepted as reasons for ignoring this aspect of mainstreaming climate change into development planning. The module facilitator will be an NGO representative with experience in building more resilient communities. On completion of the module, participants should be able to answer the following questions:

- (i) Why do people live and work in hazardous locations, thus putting their lives and assets at risk?
- (ii) Why is pro-poor development essential in reducing levels of risk at the community level?
- (iii) Why is it essential to deliver information regarding climate change risks (as well as other natural hazards) in a way that communities can assimilate and act on?
- (iv) Why is it sometimes necessary to stratify communities and conduct individual or small focus group discussions to ensure that the true situation in the community is uncovered?
- (v) What is rapid rural appraisal and how might it be used in community level planning?

### **8.7.2 Module Content**

**Part 1** - As this module is likely to come towards the end of a fairly intense two-day period, the module is designed to be a fun exercise, where either individuals (or a small group if they come from the same community) will draw a freehand map of their own community, showing all the places and features of interest (houses, roads, churches etc.) and the potential natural hazards that threaten each of these features (40 minutes). On Post-It stickers, the participants will add possible adaptation or mitigation measures and a rough estimate of the costs. If they are stuck for ideas, they may roam the room and look at other ideas from other individuals/groups, but they have to “pay” for these ideas (which can be deducted from the adaptation costs of the contributing group). The different perspectives of each gender, youth, and elders should also be captured. The existing governance arrangements in the community and the need for change should also be noted.

**Part 2** – The participants/groups will then present their adaptation plan to the plenary, along with the estimated cost of an all hazards management plan for the community, along with appropriate governance arrangements (50 minutes). Each of these plans will be discussed by the whole group of participants and an open vote will be held on which management plan appears to be the best.

### **8.7.3 Primary Resource Material**

Brooks, N. and W. Adger (2004) Assessing and Enhancing Adaptive Capacity. Technical Paper No. 7 in UNDP (2004) Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures. United Nations Development Programme, New York.

Conde, C. and K. Lonsdale (2004) Engaging Stakeholders in the Adaptation Process. Technical Paper No. 2 in UNDP (2004) Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures. United Nations Development Programme, New York.

Nakalevu, T. (2006) CV&A: A Guide to Community Vulnerability and Adaptation Assessment and Action, Secretariat of the Pacific Regional Environment Programme, Apia, Samoa.

SPREP (2005) Community-Level Adaptation to Climate Change: Action in the Pacific, Proceedings of the Regional Workshop on Community-Level Adaptation to Climate Change, Suva, Fiji, 21-23 March 2005, Secretariat of the Pacific Regional Environment Programme, Apia, Samoa.

#### **8.7.4 Other Sources of Information**

Dalal-Clayton, B. and S. Bass (2009) The challenges of environmental mainstreaming: Experience of integrating environment into development institutions and decisions. Environmental Governance No. 3, International Institute for Environment and Development, London.

FAO (2008) Climate Change and Food Security in Pacific Island Countries. Food and Agriculture Organization of the United Nations, Rome.

ISDR (2008b) Gender Perspectives: Integrating Disaster Risk Reduction into Climate Change Adaptation. International Strategy for Disaster Reduction, United Nations.

McEvoy, D., K. Lonsdale, P. Matczak (2008) Adaptation and Mainstreaming of EU Climate Change Policy: An Actor-Based Perspective. Centre for European Policy Studies Policy Brief No. 149, January 2008.

ProAct Network (2008a) Multiple Disaster Risk Reduction and Climate Change Adaption Benefits for Vulnerable Communities. (<http://www.proactnetwork.org>).

Seymour, F., C. Maurer, R. Quiroga (2005) Environmental Mainstreaming: Applications in the Context of Modernization of the State, Social Development, Competitiveness, and Regional Integration. Inter-American Development Bank, Washington DC.

Shea, E. (2004) Climate Adaptation and Adaptation Mainstreaming: Lessons from Variability. East West Center Pacific Islands Training Institute on Climate and Extreme Events, Honolulu, Hawaii, USA.

SOPAC (2008) A Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters. Pacific Islands Applied Geoscience Commission, Suva, Fiji.

Sudmeier-Rieux, K., H. Masundire, A. Rivi, and S. Rietbergen (eds) (2006) Ecosystems, Livelihoods and Disasters: An Integrated Approach to Disaster Risk Management. International Union for the Conservation of Nature, Gland, Switzerland.

UNDP (2007) Community Participation in Disaster Risk Sensitive Development Planning. Workshop Report. United Nations Development Programme, Suva, Fiji.

UNEP (2010) Linking Ecosystems to Risk and Vulnerability Reduction. The Case of Jamaica – Results of the Pilot Assessment. Risk and Vulnerability Methodology Development Project. United Nations Environment Programme, Nairobi, Kenya.

## **9. Next Steps**

The training course will be completed with an open discussion for about 1 hour. Topics to be covered will include:

- (i) Evaluation of the training course and how it could be improved:
- (ii) The uncovered training needs of the participants and suggestions on where they might find the necessary information; and
- (iii) Suggestions on other groups that might need similar training, such as parliamentarians, and how the training course would need to be adapted to meet their needs.

Participants will be encouraged to continue reading the resource library to be provided on a CD-ROM.