Mainstreaming Climate Change into National Development Planning – A Training Manual

Peter King

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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
CO₂       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
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>PICT</td>
<td>Pacific Island Countries and Territories</td>
</tr>
<tr>
<td>PIFACC</td>
<td>Pacific Islands Framework for Action on Climate Change 2006-2015</td>
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<td>PVA</td>
<td>participatory vulnerability assessment</td>
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<tr>
<td>REDD</td>
<td>reduced emissions from deforestation and forest degradation in developing countries</td>
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<tr>
<td>RIVAMP</td>
<td>Risk and Vulnerability Assessment Methodology Development Project</td>
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<tr>
<td>SARD</td>
<td>systemic approach to rural development</td>
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<tr>
<td>SEA</td>
<td>strategic environmental assessment</td>
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<tr>
<td>SIDS</td>
<td>small island developing states</td>
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<td>SOPAC</td>
<td>Pacific Islands Applied Geoscience Commission,</td>
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<td>SPREP</td>
<td>Secretariat of the Pacific Regional Environment Programme</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>UNEP</td>
<td>United Nations Environment Programme</td>
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<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>WACC</td>
<td>weighted average cost of capital</td>
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1. **Background**

Pacific Island countries and territories (PICT)\(^1\) 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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\(^1\) 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 8th module designed to recapitulate and discuss next steps.

**Table 1  Course Outline**

<table>
<thead>
<tr>
<th>Course Module Title</th>
<th>Synopsis</th>
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<tbody>
<tr>
<td>1. Introduction to Climate Change Science</td>
<td>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.</td>
</tr>
<tr>
<td>2. Vulnerability and Risk Assessment</td>
<td>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.</td>
</tr>
<tr>
<td>3. Integrating Climate Change into National Plans</td>
<td>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.</td>
</tr>
<tr>
<td>4. Strategic Environmental Assessment (SEA) of National Policies and Programmes</td>
<td>Introduction to the use of SEA as an upstream planning tool and incorporation of climate change considerations into SEAs.</td>
</tr>
<tr>
<td>5. Integration of Climate Change into National Budgets</td>
<td>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.</td>
</tr>
<tr>
<td>6. Climate Proofing Projects</td>
<td>Examination of project planning tools such as environmental impact assessment (EIA) to integrate climate change considerations into project design.</td>
</tr>
<tr>
<td>7. Community Participation</td>
<td>Explanation of community participation and consultation processes and the need for increased community resilience.</td>
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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**

<table>
<thead>
<tr>
<th>Course Module Title</th>
<th>Recommended Duration</th>
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<tbody>
<tr>
<td>1. Introduction to Climate Change Science</td>
<td>Day 1 – 9.00 am to 10.30 am, then coffee break</td>
</tr>
<tr>
<td>2. Vulnerability and Risk Assessment</td>
<td>Day 1 – 11.00 am to 12.30 pm, then lunch break</td>
</tr>
<tr>
<td>3. Integrating Climate Change into National Plans</td>
<td>Day 1 – 2.00 pm to 3.30 pm, then coffee break</td>
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</table>
| 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.


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 (CO₂) 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.


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.

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?

(vi) 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?

(vii) What are global best practices to map vulnerability to climate change conditions?

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


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.


8.2.4 Other Sources of Information


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

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


8.3.4 Other Sources of Information


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.


8.4.4 Other Sources of Information


http://www.springer.com/cda/content/document/cda_downloaddocument/9783540205623-t1.pdf?SGWID=0-0-45-164891-p36521486

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 it 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


8.5.4 Other Sources of Information

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


8.6.4 Other Sources of Information


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


8.7.4 Other Sources of Information


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.