



**National Workshop on Integrated Environmental Assessment (IEA)  
And Ecosystem-Based Management (EBM)  
18-20 August 2009, Port Moresby, PNG  
DEC, UNEP, SPREP & SOPAC**

***Summary***

1. The national workshop on Integrated Environmental Assessment and Ecosystem-Based Management was attended by about 40 participants from line government agencies, private sector, academic and research institutions, and NGOs. The workshop was organized by Department of Environment and Conservation (DEC) jointly with United Nations Environment Program (UNEP) with support from the South Pacific Regional Environment Program (SPREP) and the Secretariat of the Pacific Applied Geoscience Commission (SOPAC) in the facilitation of the workshop. The first day, scheduled for half of the day was a meeting with the PNG inter-ministerial task force, DEC, Department of National Planning and Monitoring (DNPM), UNEP, United Nations Development Program (UNDP) and advisors. The following three days involved sessions of presentations and discussions on the workshop objectives.

The workshop mainly focused on developing the Papua New Guinea Environment Climate Change Outlook (ECCO) report will be compiled by a team of representatives from various relevant sectors and national government agencies. There was a general view on inefficient data and information management or utilization and weak institutional linkages, which could impede the mainstreaming of climate change into planning processes. Despite these, all participants seemed enthusiastic about been involved in the development of country's first ECCO report and offered to contribute actively. The workshop also focused but to lesser extent the establishment of an ecosystem-based management pilot project in the country that will be funded by UNEP. The site for the demonstration project has yet to be decided up on as concerns for the availability of data and information, and the extent of issues have to be considered.

The workshop was seen as a consultation with key sector agencies for reporting on the state of environment for PNG and within the region, and helped highlight the current capacity to work on the issues discussed so that appropriate measures are considered to deliver on a satisfactory outcome.

***Background***

2. This workshop was a continuation of another, National Training Workshop on Environment Impact Assessment that was run the week before from the 10<sup>th</sup>-14<sup>th</sup> August 2009. It was also somewhat a follow-up to the Environmentally Sustainable Economic Growth (ESEG) workshop, also organized by DEC and in late April 2009. The focus of the country's development has now been slightly varied, which is now towards sustainable development that limits the impacts on the environment but promoting economic growth. Hence it would be an advantage to understand how the ecosystems work so that development can be planned within the limits that allow for the optimal economic gain and minimal impact on the environment.

***Workshop Objectives***

3. The main objective of the workshop is to build and strengthen the institutional and technical capacity of DEC, Papua New Guinea in preparing a state of environment report using an integrated environmental assessment approach to support environmental decision-making processes at national level. Also for the development of integrated policies and management measures for sensitive and vulnerable marine and coastal ecosystems in regards to the impact of climate change. A report based on the objectives will mainly discuss the likely impacts of climate

change and cross-cutting environmental issues and will therefore be an Environment and Climate Change Outlook report.

Another objective was the discussion of an ecosystem-based management demonstration project funded by UNEP.

This in turn will contribute to the UNEP Medium-Term Strategy accomplishments to assist countries and regions integrate an environmental management and climate change approach into national planning and development processes.

### ***Participants and Organizers***

4. The workshop was jointly organized by the DEC and UNEP with support from SPREP and SOPAC.
5. Majority of the participants were key senior policy and technical officers from the central and sectoral government agencies, academic and research institutions, private sector and environmental NGOs.

### ***Agenda***

6. The workshop consisted of 12 sessions with session 11 having 2 parallel sessions under Integrated Environment Assessment (IEA) and Ecosystem-Based Management (EBM) as listed below.
  - Session 1: Background and Introduction to UNEP Ecosystem Assessment and Management
  - Session 2: Cross-sectoral policy options addressing Environmental issues
    - A. Cross-sectoral policy options addressing environmental issues
    - B. Brief update from line-ministries on key sector issues and relations to the state of environment
    - C. Moderated roundtable discussion of cross-sectoral national policy and management options to support e.g. ESEG
  - Session 3: Integrated Ecosystem Management Options
    - A. Introducing key EBM concepts
    - B. Coupling integrated environmental assessments with EBM goals
    - C. Overview of current knowledge on key ecosystem status and drivers in PNG
  - Session 4: Environmental Data and Information
  - Session 5: Integrated Analysis of Environmental Trends and Policies
  - Session 6: Group exercise to identify key environmental issues and key drivers using DPSIR framework
    - A. Priority issues and related indicators
    - B. Information needs for cross-sectoral planning
  - Session 7: Group presentations (3 Groups) and finalization of the issues to be discussed in the report by using DPSIR
  - Session 8: Climate Change Vulnerability Assessment and Impacts, Mainstreaming Climate Change Adaptation and Prioritizing Adaptation Options. Also in PNG context.
  - Session 9: Group exercise to integrate climate change adaptation and vulnerability aspects in DPSIR framework
    - A. Identifying Climate Change – indicators in DPSIR
    - B. Reviewing Climate Change preparedness and adaptation options
  - Session 10: Group presentations (2 Groups)
  - Session 11.1: IEA session on ECCO report
  - Session 11.2: EBM concepts for planning of demonstration project
  - Session 12: Workshop recommendations: Mainstreaming IEA and EBM into PNG environmental policy and planning processes

## *Workshop Proceedings*

### **Session 1: Background and Introduction to UNEP Ecosystem Assessment and Management**

7. Following the opening remarks by **Gwen Sissiou**, the Deputy Secretary of the Policy Coordination and Evaluation Wing of DEC and a brief background and objectives of the workshop, **Ole Vestergaard**, Program Officer in the Environment Policy Implementation Division of UNEP (Nairobi office) gave an overview on the UNEP for Ecosystem Assessment and Management of which humans are an integral part as their activities and behaviors have some direct impact. He continued to explain that UNEP is aiming to partner with all sectors at all levels to strengthen scientific understanding of the ecosystems, assessing the ecosystems and their functions so that they can be considered and incorporated into policy planning and development processes.

### **Session 2: Cross-sectoral Policy Options Addressing Environmental Issues**

8. **Kay Kalim**, Acting Deputy Secretary of the Sustainable Environment Program Wing of DEC did a presentation on PNG Government agencies having mandates on environment protection and management and a sectoral and cross-sectoral analysis of the natural resource sectors using the Strengths, Weaknesses, Opportunities and Threats (SWOT) concept. Together with DEC, other agencies included PNG Forestry Authority, National Fisheries Authority, Departments of Agriculture and Livestock, Petroleum and Energy, Mining, National Planning and Monitoring and the Office of Climate Change and Environmental Sustainability. The natural resource sectors identified were forestry, agriculture and livestock, fisheries/coastal, water resources, mineral and petroleum resources and, infrastructures. Two main cross-cutting environmental issues; climate change and biodiversity were also analyzed using SWOT. She emphasized that the sector concerning water resources is a good example to explain the IEA process with application of the EBM approach.

Discussions on the way forward on SWOT were mainly on issues of data and information management and sharing between stakeholders. And an extra column for Vision should be added to the SWOT table to detail the possible outcomes of the other columns which may follow a process from the micro to macro levels. There was a brief update from line-ministries on key sector issues and their relations to the state of environment, which later continued to a moderated roundtable discussion of cross-sectoral national policy and management options to the ESEG initiative. A common issue raised was the concern on institutional links and how weak they are especially in terms of data and information sharing. DEC representatives explained that the Department of National Planning and Monitoring is taking the lead in planning the ESEG initiative however DEC as the government agency responsible for environment protection and management has to develop this initiative and moved it forward as per the NEC directive (Decision 147/2008).

### **Session 3: Integrated Ecosystem Management Options**

9. **Ole Vestergaard** explained in detail the key EBM concepts and the links to humans' activities and behaviors and their impact. By understanding the mechanisms that drive the system, better decisions can be made to ensure sustainability of the ecosystems. Also during this session **Dr. Geoff Dews** of University of Queensland, Australia provided more clarification to coupling IEA with EBM goals.

**Maino Virobo** then did a presentation on sustainability indicators at the global and national levels with a review of the GEO Database Development and its relevance to environmental sustainability especially in PNG. He and **Noriko Chatani**, a Sustainable Livelihoods Officer with UNDP PNG office and currently attached to DEC, went on to give an overview of the current status on Millennium Development Goal Seven (MDG7), targets and indicators, which generally refers to ensuring environmental sustainability. They also reported on the progress achieved in terms of reviewing the national indicators and the Department's current stand in evaluating existing environmental data and information for MDG7.

**Session 4: Environmental Data and Information**

10. **Tunnie Srisakulchariak** continued as a follow-on addition to Session 4, explaining environmental data and indicators (as in the MDGs) and harmonization using the framework for environmental assessment. This framework takes into consideration all the possible factors and tools (pressures, state and responses) needed to make a sound assessment of the environment based on land, water and air indicators and a fine database system. A good database system greatly contributes to the strategy and plan of action for harmonizing impacts and the ecosystem, and importantly by nominating a national focal point for the smooth transition of data and information in the policy-institute-data-framework.

Later **Phil Sherman** did a presentation on the University of Papua New Guinea’s GIS and remote sensing system and database. He explained how the system is used to also generate data and a new software called the Central Geobook, which allows the user to make GIS/mapping presentations. Discussions on how the GIS system was set up and how reliable the data used to run the system were raised. **Dr. Griffin** suggested that these data sets could be used as baseline data for the country and stressed that the issue at hand was not that there is a lack of data but the expertise and equipment to analyze and prepare existing data so that friendly information can be generated.

**Session 5: Integrated Analysis of Environmental Trends and Policies**

11. This session was the first part of the exercise later done in Session 6. **Tunnie Srisakulchariak** defined what IEA is, presented an overview of the Direct-Pressure-State-Impact-Response (DPSIR) framework for integrated analysis of environmental trends and policies as well as a set of processes and methods for analyzing the state of environment. DPSIR represents all the factors needed for assessment with the aim of improving and protecting the environment as well as to identify adaptation by people to environmental changes and, drivers of human development and associated pressures that, along with natural processes, affect the state and trends of the environment. Another is to assess how society is responding to these impacts and how effective its response is.

**Session 6: Group exercise to identify key environmental issues and key drivers using DPSIR framework**

12. Session 6 was the second part to Session 5 in which participants were asked to break up into three groups for an exercise to identify key environmental issues and key drivers using the DPSIR framework for water resources (marine and freshwater), land degradation (deforestation and degradation) and, climate change and governance.

**Session 7: Group presentations and finalization of the issues to be discussed in the report by using DPSIR**

13. Group presentations for instructions given in Session 6

Group1 Water Resources

Issue	Drivers	Pressure	State	Impact	Response
<b>Fresh water</b>	<ul style="list-style-type: none"> <li>• Population</li> <li>• Economic</li> <li>• Land use</li> <li>• Technology</li> <li>• Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Increased Tourism</li> <li>• Unplanned settlements</li> <li>• Increase in demands</li> <li>• Changes in hydrological patterns</li> <li>• Pollutions (industrial/dome stic)</li> <li>• Information</li> <li>• Natural disasters</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of aquatic biodiversity</li> <li>• Degradation in water quality</li> <li>• Reduction in yield</li> <li>• Loss of value (customary/ environment)</li> </ul>	<ul style="list-style-type: none"> <li>• Degradation in quality</li> <li>• Availability</li> <li>• Health problems</li> <li>• Productivity</li> <li>• Trans boundary issues</li> </ul>	<ul style="list-style-type: none"> <li>• Waste mgnt technology</li> <li>• Improve planning/ process (policies/ regulations)</li> <li>• Change in human attitude</li> <li>• Improve land use patterns</li> <li>• Adaptations options</li> <li>• Awareness/ capacity</li> </ul>

		<ul style="list-style-type: none"> <li>• Loss of customary rights</li> </ul>			building
<b>Marine</b>	<ul style="list-style-type: none"> <li>• Except Land Use</li> </ul>	<ul style="list-style-type: none"> <li>• Pollution (shipping/land base/dam)</li> <li>• Coral bleaching</li> <li>• SST Mining</li> <li>• Over fishing</li> <li>• Increase in demand for the resources</li> <li>• Natural disasters</li> <li>• Loss of coastal habitat</li> <li>• Destructive fishing</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of marine biodiversity</li> <li>• Changes of migratory patterns</li> <li>• Breeding season changes</li> <li>• Degradation of water quality</li> <li>• Reduction in yield</li> <li>• Loss of value</li> </ul>	<ul style="list-style-type: none"> <li>• Sea level rise</li> <li>• Health</li> <li>• Productivity</li> <li>• Trans boundary</li> <li>• Loss of revenue</li> <li>• Poverty increase</li> <li>• Loss of land</li> <li>• Human stress</li> </ul>	<ul style="list-style-type: none"> <li>• Improved standard approach to take</li> <li>• Waste mgnt technology</li> <li>• Change of human attitude</li> <li>• Land use patterns</li> <li>• Improve policies/processes</li> <li>• Integrated approach at all levels</li> <li>• Awareness/campaign</li> </ul>

Group 2

Issue	Drivers	Pressure	State	Impact	Response
<b>Deforestation (Removal of existing primary/secondary forest for development)</b>	Economic Development	<ul style="list-style-type: none"> <li>• Foreign Exchange</li> <li>• Poverty Alleviation</li> <li>• Improved living standards</li> <li>• Modernization</li> </ul>	<ul style="list-style-type: none"> <li>• Increased GDP</li> <li>• Increased Disposal income</li> </ul>	<ul style="list-style-type: none"> <li>• Urbanization</li> </ul>	<ul style="list-style-type: none"> <li>• Improve policies/regulations</li> <li>• Improve urban planning</li> </ul>
	Global Market	<ul style="list-style-type: none"> <li>• Foreign Exchange</li> <li>• Increased Trade relations</li> </ul>	<ul style="list-style-type: none"> <li>• Increased foreign investment</li> <li>• Increased foreign trade</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of land</li> </ul>	<ul style="list-style-type: none"> <li>• National Land Use Plan</li> </ul>
<b>Degradation</b>	Subsistence Agriculture	<ul style="list-style-type: none"> <li>• Food Security</li> <li>• Increased consumption</li> <li>• Increased population</li> <li>• Livelihood</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent food supply</li> <li>• Increased income</li> </ul>	<ul style="list-style-type: none"> <li>• Land degradation of biodiversity</li> <li>• Run-off/erosion</li> <li>• Loss of soil fertility</li> </ul>	<ul style="list-style-type: none"> <li>• Improve land use planning</li> <li>• Education/awareness</li> <li>• Capacity building</li> </ul>
	Commercial Agriculture	<ul style="list-style-type: none"> <li>• Economic development</li> <li>• Income earning</li> </ul>	<ul style="list-style-type: none"> <li>• Increased exports</li> <li>• Increased downstream processing</li> </ul>	<ul style="list-style-type: none"> <li>• Increase population growth</li> <li>• deforestation</li> </ul>	<ul style="list-style-type: none"> <li>• integrated ecosystem assessment</li> <li>• EMPs for all sectors</li> </ul>
	Population Growth	<ul style="list-style-type: none"> <li>• Continuation of human species</li> <li>• Human resource</li> </ul>	<ul style="list-style-type: none"> <li>• Population Census</li> <li>• Reduce birth mortality rate</li> <li>• Increase life expectancy</li> </ul>	<ul style="list-style-type: none"> <li>• Increase consumption</li> <li>• Shortage of food</li> <li>• Supply/basic services</li> </ul>	<ul style="list-style-type: none"> <li>• Family planning</li> <li>• Education/awareness</li> <li>• Health policies</li> </ul>

Group 3

Issue	Drivers	Pressure	State	Impact	Response
<b>Climate Change</b>	<ul style="list-style-type: none"> <li>• Population increase</li> <li>• Economic growth</li> <li>• Existing Technology</li> <li>• Cultural practice</li> <li>• Politics</li> <li>• Ineffective policy implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Increased food production</li> <li>• Increased demand for fuel consumption</li> <li>• Limited space</li> <li>• Industrial expansion</li> <li>• Increase in CO2</li> </ul>	<ul style="list-style-type: none"> <li>• Over crowded</li> <li>• Emergence of new diseases</li> <li>• Land availability</li> <li>• Quality of life</li> <li>• Quality of health</li> <li>• Quality of education</li> </ul>	<ul style="list-style-type: none"> <li>• Change in climate patterns</li> <li>• Sea level rise</li> <li>• Species extinction</li> <li>• Food security</li> <li>• Famine</li> <li>• Ethnic conflicts</li> <li>• Natural disasters</li> </ul>	<ul style="list-style-type: none"> <li>• Resettlement</li> <li>• Alternative livelihoods</li> <li>• Land reclamation</li> <li>• Migration</li> <li>• Advanced technology</li> <li>• Effective policy implementation</li> <li>• Strong institutions</li> <li>• Provide fuel alternatives</li> </ul>
<b>Governance</b>	<ul style="list-style-type: none"> <li>• Corruption</li> <li>• Indecisive leadership</li> <li>• Poor institutional framework</li> </ul>	<ul style="list-style-type: none"> <li>• Bribery</li> <li>• Selfishness</li> <li>• Lack of resources</li> <li>• Bad policies and legislations</li> </ul>	<ul style="list-style-type: none"> <li>• Instability</li> <li>• Incompetent leaders</li> <li>• Loss of investors' confidence</li> </ul>	<ul style="list-style-type: none"> <li>• Mistrust</li> <li>• Poverty</li> <li>• Lack of basic service delivery</li> </ul>	<ul style="list-style-type: none"> <li>• Sound policies, regulations and laws in place</li> <li>• Promotion of transparency and accountability framework</li> <li>• Effective enforcement of disciplinary measures</li> </ul>

**Session 8: Climate Change Vulnerability Assessment and Impacts, Mainstreaming Climate Change Adaptation and Prioritizing Adaptation Options in the region and in PNG context.**

14. Session 8 consisted of presentations by **Tunnie Srisakulchariak**, **Gwen Sissiou** and **Dr. Netatua Pelesikoti**. **Tunnie's** presentation gave a general outlook on climate change and defining key principles applicable to the concept as well as vulnerability, adaptation and mitigation. She also gave an overview of major changes in climatic variables and their implications for selected sectors with case studies from other developing countries and their adaptation practices for various examples. One main component of climate change vulnerability which she and **Netatua** emphasized on was prioritizing adaptation strategies/options so that the mainstreaming process can be done efficiently. **Netatua** continued to explain how planning in terms of vulnerability should also include impacts brought on by natural hazards, using tools such as CHARM in relation to disaster risk assessment, on the ecosystem. This will have most relevance when assessing economic activities at all levels.

**Gwen** basically talked about PNGs position under the United Nations Framework on the Climate Change Convention (UNFCCC). She gave brief details on how the country plans to carry out this assessment by identifying the degree of future risk induced by climate change and climate variability on vulnerable economy and society within specific sectors upon consultations and using the analysis on existing climate data. Adaptive measures will inevitably be affected by institutional, technological and cultural features as well as mainstreaming environmental considerations into planning and policy levels.

**Session 9: Group exercise to integrate climate change adaptation vulnerability aspects in DPSIR framework**

15. This exercise involved answering the following the questions on impacts of climate change and adaptation.

1. *What are the estimated impacts of changing climatic variables on a resource-base that is relevant in PNG?*

2. What are the potential consequences of estimated impacts that could be relevant in designing future development activities, and coping and adaptation strategies?
3. What are potential adaptation strategies and prioritizing them?
4. What other mainstreaming processes are carried out in your countries?

### Session 10: Group presentations (2 Groups)

16. Group presentations for instructions given in Session 9

#### Group 1 Marine

Marine (Consequential Areas of Climate Change)	Potential Impacts	Adaptation
Sea level Rise	<ul style="list-style-type: none"> <li>• Loss of land</li> <li>• Loss of fresh water</li> <li>• Salt water intrusion</li> <li>• Coastline erosion</li> <li>• Decrease in fisheries</li> </ul>	<ul style="list-style-type: none"> <li>• Coastal mangrove replanting(DEC/OCCES coordination with communities)</li> <li>• Monitoring program (DEC/NFA/NGOs/community/Province)</li> <li>• Coastal management plan (DEC/NFA)</li> <li>• Policies (criteria infrastructure development around the coast):- Education and awareness (all sectoral agencies, communities, provinces and OCCES).</li> <li>• Other options such as food security, health and social</li> </ul>
Increase in Sea Surface Temperature (SST)	<ul style="list-style-type: none"> <li>• Coral bleaching</li> <li>• Sea level rise</li> <li>• Disturbance to natural growth patterns</li> <li>• Fish migration due to decreasing O<sub>2</sub></li> <li>• Increase diseases vulnerability</li> <li>• Species invasion</li> </ul>	Key Prioritizing Questions: <ul style="list-style-type: none"> <li>• Is it sustainable/feasible?</li> <li>• Acceptability</li> <li>• Beneficial for all</li> <li>• In line with government policies</li> </ul>
<b>MAINSTREAMING PROCESS</b>		
<p><b>National Constitution</b></p> <p>↓</p> <p><b>National Strategic Plan (NSP)</b></p> <p>↓</p> <p><b>Medium Term Development Strategy (MTDS)</b></p> <p>↓</p> <p><b>Environmentally Sustainable Economic Growth Policy (ESEG)</b></p> <p>↓</p> <p><b>Sectoral Policies</b></p> <p>↓</p> <p><b>MRA, NFA, PNGFA, OCCES, DEC, DPE, MPGH, DAL, DOT, PNG Ports</b></p> <p><b>OCCES – Coordinating agency for adaptation policies in collaboration with DEC</b></p>		

#### Group 2 Terrestrial

Terrestrial Systems	Potential Impacts	Adaptation	Mainstreaming
Mountains	<ul style="list-style-type: none"> <li>• Increased Temperature</li> <li>• Invasive Species, Flora/fauna</li> <li>• Migration of species</li> <li>• Change of habitat</li> <li>• Increased precipitation</li> <li>• Extinction of spp</li> </ul>	<ul style="list-style-type: none"> <li>• Increase mosquito nets</li> <li>• Increase awareness</li> <li>• Use of herbal indigenous medicine</li> <li>• Encourage tree planting</li> <li>• Increase biodiversity parks</li> </ul>	<ul style="list-style-type: none"> <li>• Increase research</li> <li>• Increase integrate into national plans and budget process</li> <li>• Increase climate</li> </ul>



	<ul style="list-style-type: none"> <li>• Introduction of vector borne diseases</li> <li>• Decrease in yield of communal subsistence crops</li> <li>• Increased soil erosion/run off</li> <li>• Land use compensation demand</li> <li>• Infrastructure cost</li> </ul>		change adaptation family policy
<b>Rivers, Lakes and Swamps</b>	<ul style="list-style-type: none"> <li>• Invasive flora/fauna</li> <li>• Extinction of spp</li> <li>• Reduced water level</li> <li>• Salt water intrusion</li> <li>• Increased up-welling</li> <li>• Loss of rec. activities</li> <li>• Reduced revenue/tourists</li> <li>• Loss of fresh water/ecosystem</li> <li>• Loss of edible resources</li> <li>• Reduced breeding cycle</li> </ul>	<ul style="list-style-type: none"> <li>• Identify new source of ground/water</li> <li>• Distribution of tanks and roof catchments</li> </ul>	<ul style="list-style-type: none"> <li>• Segregation/perm its of water use for commercial/dome stic</li> <li>• Recycling waste in industries</li> <li>• Water rationing</li> <li>• Trans boundary water transfer</li> </ul>
<b>Vegetation (Montane Savannah &amp; Arable Land)</b>	<ul style="list-style-type: none"> <li>• Change in growth rate</li> <li>• Change in vegetation types</li> <li>• Pressure on vegetation for agricultural space</li> <li>• Limited arable land</li> <li>• Loss of food crops</li> <li>• Decrease in the variety of food crops</li> <li>• Increase food prices</li> <li>• Increase tribal conflicts due to competition in food supply</li> <li>• malnutrition</li> </ul>	<ul style="list-style-type: none"> <li>• introduce resistant crop variety</li> <li>• change in diet</li> <li>• encourage storage of traditional food</li> <li>• preservation/rationing of food</li> <li>• encourage backyard gardening</li> <li>• introduce innovative technology</li> </ul>	<ul style="list-style-type: none"> <li>• separate agriculture and livestock</li> <li>• increased research on biotech</li> <li>• increase awareness</li> </ul>

### Session 11.1: IEA session

17. In this session **Tunnie** introduced scenarios and modeling tools to help with the planning process in regards to information and participation as well as defining the purpose, process and substance to specific objectives, approaches and levels of detail. She also provided the steps to follow in a scenario methodology.

Following **Tunnie's** presentation was a discussion on the ECCO report scope and table of contents, forming a working team to oversee the compilation of the report with a timeline that expects a first draft be submitted by end of December 2009. It was firmly suggested that the report has a maximum of 120 pages. All those involved in the discussion agreed that commitment on data provision by each sector for developing the PNG ECCO was vital for outreach and communications including policy linkages. Follow-up talk on further steps in the process will be made known at a later date after team members have been named.

After the discussions, **Netatua** gave more information and clarification on mainstreaming climate change into the national sustainable development plans with an integrated approach. She provided examples that could act as scenarios to addressing and planning in relation to the impacts of climate change, thus proposed that this phenomena be treated as an environmental issue and be seen as the government's business or with a business sense as it inevitably has a direct impact on the economy.

### Session 11.2: EBM concepts for planning of demonstration project

18. This parallel session to 11.1 generally involved discussions on EBM concepts for the planning of the demonstration project by taking into account concepts and practical case studies on marine and coastal ecosystem-based management. Such as those from the Maldives, Locally-Managed Marine Areas (LMMA) and Land-Ocean integrated management.



**Dr. Geoff Dews** presented on behalf of the group in this session. He said the group discussed that the pilot program could possibly be set up in either Kimbe, where there is a lot of information but less issues, or another site where there are more issues but less information. They went on to discuss the processes to establishing this project by way of a work plan, the resources available and the methodology as well as the scale of the project/area. They agreed that having known data would make the process of set up following the processes of EIA, IEA and EBM with less difficulty. Some limitations or risks identified included human resource which may be inadequate or inexperienced, commitment by the local people and methods of data collection which should not be duplicating with climate change objectives. They emphasized that key capacity building should be done at all levels, from community to provincial and that data collected from this demonstration project is a cost-effective way of adding data to the country's database.

### **Session 12: Recommendations**

19. A central data base system should be established which should covers all sectors, including resources, environment and climate.

The committee to develop the PNG ECCO report should include the sectors agencies, academic institutions, NGOs and the resource sector.

Data and information generated from different sector agencies, resources sector and NGOs should be shared and communicated without protocol requirements. Assistance should be sought from UPNG on GIS and remote sensing data and information.

### ***Next Steps***

20. Identify the relevant sectors that will form the committee, and the focal points for data and information sources to progress the ECCO project including framing of the draft report.

Develop the working timetable which encompasses budget appropriations with progress indicators.

## ***Participants List***

### Resource Personnel

1. Ole Vestergaard  
*UNEP*
2. Tunnie Srisakulchairak  
*UNEP*
3. Dr. Geoff Dews  
*University Of Queensland*

### Support Resource Personnel

4. Tapa Suaesi  
*SPREP*
5. Dr. Netatua Pelesikoti  
*SOPAC*
6. Akuila Tawake  
*SOPAC*
7. Dr. Frank Griffin  
*UPNG*
8. Phil Sherman  
*UPNG*

### DEC Personnel

9. Gwen Sissiou
10. Kay Kalim
11. Maino Virobo
12. Michael Bongro

### Participants

13. Jeff Kinch
14. Joycelyn Wavik Namoi
15. Amanda Binoka
16. Alu Kaiye
17. Edvinah Irale
18. Penias Brown
19. Rodney Ipu
20. Regina Kiele
21. Frazier Murray
22. Raphael Kombukon
23. Gumuna Dogoliv
24. Ursula Nambau
25. Vivienne Morofa
26. Jennifer R Mais

27. Zola Sangga
28. John Genolagani
29. Ursula Kolkolo
30. Rose Kualke Singandan
31. Judah T L Mantu
32. Jessie W Pok
33. Charles Rawali
34. Nalau Bingedin
35. Seymore Pok
36. Bernard Suruman
37. Germain Vigil
38. Michael Hosho
39. Yvonne Tio
40. James Sabi
41. Vagi Genorupa
42. Job Opu
43. Robert Sine
44. Clifton Gwaibo
45. Robin Totome
46. Dr. Peter Petsul
47. Rose Waigl Alphonse
48. Viniu Genia
49. Ted Rowely
50. Peter Hitchcock
51. Gai Kula
52. Noriko Chatani
53. Aidah Somake
54. Dr. Duguman
55. Alyn Bruce
56. Vagi Rei
57. Kwaipo Vali
58. Frank Lohia
59. Beside Thomas
60. John Michael
61. Thomas Maniwavie
62. Carmel Jonduo
63. Elsay Mumu
64. Elton Kaitokai

### Support Admin Staff

65. Miro Vali  
*DEC*