

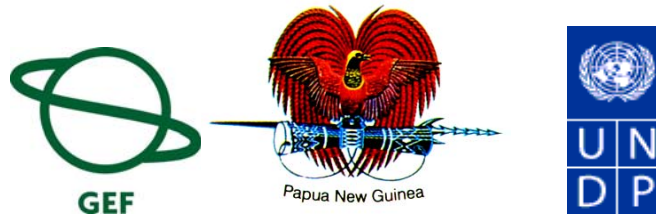
# National Capacity Self Assessment Project: Assessing the Capacity of Papua New Guinea to Implement the United Nations Convention on Biological Diversity (UNCBD), the United Nations Convention to Combat Desertification (UNCCD), and the United Nations Framework Convention on Climate Change (UNFCCC)

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## FINAL REPORT

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Global Environment Facility through the United Nations Development Program, and executed by  
the Papua New Guinea Department of Environment and Conservation

*Papua New Guinea's 4<sup>th</sup> Goal of the Constitution*

Papua New Guinea's natural resources and environment to be conserved and used for the collective benefit of us all and are replenished for the benefit of future generations.

*Papua New Guinea's Vision 2050*

Papua New Guinea will be a Smart, Wise, Vibrant and Happy Country by 2050

*Papua New Guinea's 4<sup>th</sup> Mid-term Development Strategy Principal*

To maximise the value of our natural resources and environment, through sustainable primary production and downstream processing, with a focus on agriculture, forestry, fisheries and tourism supported by mining, petroleum and gas.

*Papua New Guinea's Environmentally Sustainable Economic Growth Policy Vision*

Achieving environmental sustainability and economic growth through integrated management of development that protects ecological integrity, improves quality of life and provides social equity without compromising the needs and aspiration of the future generations.

*United Nations Millennium Development Goals*

The environment provides goods and services that sustain human development so we must ensure that development sustains the environment. Better natural resource management increases the income and nutrition of poor people.

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## ACRONYMS

ABS	Access Benefit Sharing
ARB	Autonomous Region of Bougainville
AusAID	Australian Agency for International Aid
CBP	Cartagena Biosafety Protocol
CCDP	Climate Compatibility Development Plan
CDM	Clean Development Mechanism
CDS	Capacity Development Strategy
CoP	Conference of Parties
CSIRO	Commonwealth Science and Industry Research Organisation
DAL	Department of Agriculture and Livestock
DEC	Department of Environment and Conservation
DEWHA	Department of Environment, Water, Heritage and Arts
DFAT	Department of Foreign Affairs and Trade
DJAG	Department of Justice and the Attorney General
DMPGM	Department of Mining, Petroleum and Geoscience Management
DNA	Designated National Authority
DNPM	Department of National Planning and Monitoring
DoE	Department of Education
DoH	Department of Health
DPLLG	Department of Provincial and Local Level Government
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
ENSO	El Niño-Southern Oscillation
EPA	Environment Protection Agency
ESEGE	Environmentally Sustainable Economic Growth
EU	European Union
FRI	Forestry Research Institute
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Green House Gas
GMO	Genetically Modified Organisms
HIV	Human Immunodeficiency Virus
ICZM	Integrated Coastal Zone Management
IFS	Integrated Financing Strategies
LIS	Land Information Services
LLG	Local Level Government
LMO	Living Modified Organisms
LNG	Liquid Natural Gas
MDG	Millennium Development Goal
MEA	Multilateral Environmental Agreements
MoA	Memorandum of Agreements
MoU	Memorandum of Understanding
MPA	Marine Protected Areas
MRA	Mineral Resources Authority
MTDS	Medium Term Strategic Plan
NAP	National Action Program
NAQIA	National Agriculture Quarantine and Inspection Authority
NARI	National Agriculture Research Institute
NBSAP	National Biodiversity Strategic Action Program
NC	National Communication
NCC	National Conservation Council
NCSA	National Capacity Self Assessment
NEC	National Executive Council
NFA	National Fisheries Authority
NGO	Non-government Organisations

NMSA	National Maritime Safety Authority
NRI	National Research Institute
NSO	Nationals Statistic Office
NWS	National Weather Service
OCCES	Office of Climate Change and Environmental Sustainability
PA	Protected Areas
PES	Payment for Ecosystem Services
PNG	Papua New Guinea
PNGFA	Papua New Guinea Forest Authority
PNGRIS	Papua New Guinea Resources Information System
PoWPA	Program of Works on Protected Areas
PPP	Public Private Partnership
RSPO	Roundtable for Sustainable Oil Palm
SLM	Sustainable Land Management
SPREP	Secretariat of the Pacific Regional Environment Program
ToR	Terms of Reference
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention on Combating Desertification
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
V&A	Vulnerability and Assessment



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Senior officers and staff of DEC provided very valuable input into the assessment process and played a leading role in organizing and supporting the consultation activities.

A full list of people that participated or consulted can be found in Appendix A.

Bikpela tenkyu tru!

## **EXECUTIVE SUMMARY**

The NCSA project enables countries to assess national capacity at multiple levels and identify capacity building actions and strategies; with regards to the three Rio Conventions:

- the United Nations Convention on Biological Diversity (UNCBD),
- the United Nations Convention on Combating Desertification (UNCCD), and
- the United Nations Framework Convention on Climate Change (UNFCCC).

The main expected outputs of a NCSA include:

- a stock-take of the measures taken to date to build national capacity and address the requirements of the Rio Conventions and identification of main gaps in implementation,
- identification of priority capacity building needs to address gaps in implementation, and
- identification of cross-cutting environmental and capacity issues that provide opportunities for an integrated and synergistic approach to capacity building and implementation of the conventions.

This report takes stock of Papua New Guinea's (PNG's) capacity issues, as well as offering some suggestions on simple steps to mitigating identified capacity constraints, and identifying opportunities for meeting the obligations of the Rio Conventions without further diverting or restraining already scarce resources.

During the course of the NCSA, it has been determined, that much has already been documented about the environmental and sustainable development challenges in PNG. Endless lists of recommendations have been proffered, many of which are still pertinent and their implementation by government long overdue.

A summary National Biodiversity Strategic Action Program (NBSAP) was launched in 2007 and is currently under review. Its implementation has been very slow and roles, responsibilities and formal coordination arrangements still need to be defined and strengthened. The National Action Program (NAP) is currently being developed with GEF support under the Sustainable Land Management (SLM) project and should be completed during 2010. This will also need to clearly define roles and responsibilities and coordination arrangements. The 2<sup>nd</sup> National Communication (NC) to the UNFCCC is currently being conducted, though PNG is yet to formalize a climate change policy and develop a national adaptation strategy, though as mentioned above, the Climate Compatible Development Plan (CCDP) is currently being formulated.

Despite the slow progress in complying with the Rio Convention and developing the NBSAP, NAP and climate change policies, PNG continues to implement many initiatives that support various Articles and the decisions and recommendations of the Rio Convention CoPs and its subsidiary bodies.

The NCSA has found that greater commitment and effort is needed to promote the linkages between the Rio Conventions, national development strategies and other sectoral strategies and the needs and aspirations of rural communities. Many national leaders and stakeholders are still not aware of PNG's obligations to the Rio Conventions and are not able to relate to these obligations in their institutional mandates, community objectives and work plans.

An important starting point is the review and strengthening of the NBSAP, development of the NAP, a national climate change adaptation and mitigation strategy including a national Reduced Emissions from Deforestation and Forest Degradation (REDD+) framework, and strengthening co-management and inter-ministerial coordination arrangements.

## Main gaps and capacity need in implementing the Rio Conventions in PNG

UNCBD	UNCCD	UNFCCC	Cross-cutting
<p>Absence of an institutional arrangement to coordinate implementation of the NBSAP.</p> <p>Absence of a national biodiversity conservation policy.</p> <p>Lack of an implementation and resource mobilization strategy for the NBSAP.</p> <p>Absence of a Biosecurity Act and the Biosafety Policy Framework.</p> <p>Absence of a legal regime to protect intellectual property rights of organizations and individuals involved in biodiversity research and development.</p> <p>Very few Management Plans for Protected Areas.</p> <p>Limited resources within DEC to support implementation of the NBSAP.</p> <p>Absence of a sustainable financing mechanism to support conservation work in PNG.</p> <p>Lack of a policy to guide national for strategies on invasive species.</p>	<p>No communication strategy for the UNCCD in place.</p> <p>Limited prioritization of land degradation issues in PNG.</p> <p>Absence of a national strategy to implement the UNCCD.</p> <p>Absence of an institutional arrangement to coordinate implementation of the UNCCD.</p> <p>Weak linkages between land degradation, climate change and biodiversity conservation.</p> <p>Limited baseline data on forest use, land use, demographics and agriculture production.</p> <p>Priority land degradation issues and sites in PNG still to be confirmed.</p> <p>Limited financial resources to upscale integrated V&amp;A Assessments.</p> <p>Limited harmonizing of Land Information Systems and absence of an interagency protocol for information sharing and data standards.</p> <p>Need for stronger effort in utilizing PNG national scientific and research institutions.</p> <p>Need for a resource mobilization strategy to support the implementation of the NAP.</p> <p>Weak project cycle management.</p> <p>Limited efforts to strategically mobilize innovative finances.</p>	<p>Absence of a national climate change policy for PNG.</p> <p>Absence of a national adaptation strategy.</p> <p>Lack of a Climate Change Communication Strategy.</p> <p>Weak capacity of the Designated National Authority to manage the Clean Development Mechanism.</p>	<p>Limited knowledge and information management.</p> <p>Limited coordination of national strategies for MEA implementation.</p> <p>Limited communication and awareness raising.</p> <p>Limited resource mobilization and project management.</p> <p>Limited partnerships and wide participation.</p> <p>Limited institutional and organizational capacity of focal institution.</p> <p>Limited involvement in MEA negotiations and reporting.</p> <p>Limited mainstreaming of the Rio Conventions across government and other stakeholders.</p>

## 1. THE NATIONAL CAPACITY SELF ASSESSMENT PROJECT

### 1.1 Purpose and Outputs

The GEF has taken a particularly strategic approach to capacity building which involves supporting specific countries to undertake a NCSA (<http://ncsa.undp.org/>) to determine priority capacity needs. The NCSA project enables countries to assess national capacity at the systemic (enabling environment), institutional (organizational) and individual (human resources) levels and identify capacity building actions and strategies; with regards to the three Rio Conventions:

- the United Nations Convention on Biological Diversity (UNCBD),
- the United Nations Convention on Combating Desertification (UNCCD), and
- the United Nations Framework Convention on Climate Change (UNFCCC).

The main expected outputs of the NCSA include:

- a stock-take of the measures taken to date to build national capacity and address the requirements of the Rio Conventions and identification of main gaps in implementation,
- identification of priority capacity building needs to address gaps in implementation, and
- identification of cross-cutting environmental and capacity issues that provide opportunities for an integrated and synergistic approach to capacity building and implementation of the conventions.

Although not obligatory under the NCSA, many countries conducting NCSAs have also developed action plans and strategies to address the findings of their capacity assessments. PNG has also taken this approach.

Completion of the NCSA for PNG has been a long-running activity, having formally been launched in the Melanesian Sub-Region in 2005. In 2005, PNG obtained its endorsement from the UNDP and the GEF to begin their NCSA, with the NCSA being officially launched in PNG in early 2006, with its initial Inception Workshop held in August 2006. Despite starting off well, the NCSA faltered along the way, which severely affected its completion. In August 2009, DEC sought the assistance of SPREP to finalise the NCSA. SPREP support began in October 2009 and has culminated in the completion of this report in March 2010.

Following discussions by SPREP with the NCSA Global Support Unit based in New York and after further consultations with DEC, it was agreed that the findings of the NCSA be consolidated into one report covering the stock-take, thematic assessments and cross-cutting assessment. Instead of developing an overly prescriptive Capacity Development Strategy (CDS), the report presents a CDS that targets the strengthening of the enabling environment and key institutions and also provides an opportunity for a synergistic and integrated approach.

It is not possible in this report to capture and detail all the challenges and capacity issues faced by a relatively large, diverse and complex nation such as PNG in its quest to address the obligations under the Rio Conventions. Furthermore, capacity is a 'moving target'. For example, changing circumstances at the national context and recent developments in global environmental trends together with their attendant implications on national capacities also gives rise to new capacity expectations and requirements. The proposed revised Kyoto mechanism on REDD+ currently being negotiated under the UNFCCC is a perfect example. The Copenhagen Accord also proposes further capacity issues for mitigation and adaptation to climate change, which are seen as inseparable from economic development. Emerging donor policies and shifting development paradigms, such as 'mainstreaming', also have implications on national capacities; as does PNG's new development focus.

## 1.2 Concepts and terminologies

### **Capacity**

Many different definitions have been used for the term ‘capacity’, which while commonly advocated and used, remains an elastic, sometimes confusing and somewhat elusive concept.

This report uses the following definition of capacity:

*The ability of individuals, institutions and society to perform and adapt functions, solve problems and set and achieve objectives in a sustainable manner.*

Capacity can be detailed in terms of individual capacities of staff members (i.e. the skills training required), institutional capacity (e.g. of the overall organisational performance and functioning capabilities), and systemic capacity (i.e. consideration of the overall policy, regulatory and accountability frameworks within which institutions and individuals operate).

### **Institutions and institutional capacity**

Like capacity, the concept of institutions and institutional capacity has acquired many different meanings and definitions.

Institutional capacity includes empowerment, social capital, the enabling environment and power relations. Strengthening institutional capacity also entails improving vertical and horizontal coordination and integration across agencies, ensuring ownership, supporting endogenous growth, knowledge management and learning and enhancing the enabling environment (policies, coordination mechanisms etc) to support individual and collective actions. Leadership can also be an aspect of institutional capacity as well as a strategic asset.

This report uses the term ‘institution’ to mean:

*The institutions, organizations and communities functioning within a contextual setting of relationships, collaboration and coordination mechanisms, regulatory framework, power relations, etc.*

This report also defines ‘institutional capacity’ as:

*The ability of institutions, organizations, communities, rules, relationships and values, within their different contexts, to achieve organizational, development and societal goals.*

Institutional capacity is therefore a broad concept that constitutes factors such as:

- technical ability,
- leadership,
- legitimacy of organizations,
- political support, and
- suitable and sufficient enabling environment (i.e. legal frameworks and coordination arrangements).

Each of these constituent parts are interrelated and, if properly supported can contribute to the overall strengthening of institutional capacity.

### **Capacity development**

‘Capacity development’ refers to actions needed to enhance the ability of individuals, institutions and systems to make and implement decisions and perform functions in an effective, efficient and sustainable manner. It has also been referred to as a process by which people and organizations create and strengthen their capacity over time. It is complex, involving multiple levels and actors, power relationships and linkages.

Emphasis on capacity development has shifted from targeting institutions and individuals to also include the broader enabling environment, requiring a more nuanced, multi-layered and synchronized; and results oriented approach.

The terms ‘capacity development’ and ‘capacity building’ have often been used interchangeably, which often causes some confusion amongst users. Generally, the former is referred to as an on-going gradual, endogenous and iterative development process building on existing capacities, while the latter has been associated with externally driven interventions aimed at creating new capacity. For the purpose of this assessment and report ‘capacity development’ is the preferred term.

While there are no silver bullets for capacity development, past experiences provide some lessons and guidance for future planning and implementation of capacity development programmes in PNG. Notably, country ownership and endogenous process of change are essential principles when defining capacity development initiatives, and capacity development needs to be framed within the context of national politics, institutional arrangements, culture, tradition and historical backdrops. It is inextricably linked with power relations, competition and levels and types of control over resources exerted by different stakeholders.

### **1.3 Methodology**

In conducting the NCSA, several activities were undertaken. These included firstly, an in-depth literature review (see Resources Material section) which has resulted in the collation of numerous resources that will be distributed to various stakeholders. Secondly, during the period of 28<sup>th</sup> September to the 16<sup>th</sup> October, multiple stakeholders, representing various government agencies, research and NGOs and civil society were conducted; as well as several strategic committee and/or project team meetings (e.g. MDG 7 committee) (see Appendix A for full list of people consulted during the NCSA).

A four day workshop was held from the 24<sup>th</sup> to the 27<sup>th</sup> August 2009 with multiple stakeholders. This workshop focused on capacity issues related to meeting the obligations of the UNCBD, the UNCCD and touched on the UNFCCC.

As a Party to the three Rio Conventions, the main vehicle for planning and implementing the conventions, as stipulated in the convention articles include:

- the NBSAP for the UNCBD,
- the NAP to address land degradation and mitigate the effects of drought for the UNCCD, and
- because PNG does not yet have a climate change policy, the NCs for the UNFCCC.

The NCSA used the following frameworks and strategies for carrying out the stock-take and thematic assessment exercises and for determining the extent to which the convention provisions have been implemented in PNG:

- UNCBD Articles and how these are covered by the NBSAP,
- UNCCD objectives as per the 10-Year Strategic Plan (as PNG has yet to develop a NAP),
- Pacific Islands Framework for Action on Climate Change (as PNG is yet to develop a national climate change strategy), and
- recommendations from the 2006 NCSA Global Support Program findings and synthesis of NCSA reports.

A total of a day-and-a-half was designated to the UNCBD, whereby capacity issues relating to the NBSAP was discussed, as the NBSAP is the main vehicle for implementing the UNCBD for a given country (see Box 1 for questions related to the NBSAP).

- Box 1:** Questions used in UNCBD stocktake assessment
- What do you think your role or your agencies role is in implementation of the NBSAP? (e.g. education, regulation, enforcement, governance, monitoring, reporting, research, environmental impact assessments, legislation development, etc.)
  - What ‘capacity constraints’ would you or your agency has in performing the roles that you have identified in implementing the NBSAP?
  - What ‘capacity constraints’ exist for mobilising resources to implement the NBSAP by you or your agency?
  - Why do these ‘capacity constraints’ exist?
  - What actions would need to be taken to mitigate these ‘capacity constraints’? (e.g. skills need, technical needs, resource needs, information needs, etc.)

A questionnaire was also sent to Provincial Planning, and Environment Department (Box 2) participants to the workshop. Responses were received from the following Provinces:

- East New Britain,
- East Sepik,
- Eastern Highlands
- Madang
- Manus
- Milne Bay
- NCD
- West New Britain
- Western Highlands.

A follow-up meeting was held specifically for Provincial participants (see Box 2 for Provincial questions).

- Box 2:** Questions addressed to Provincial participants for the NCSA
- List title of main policy and strategy documents used by the Provincial government for planning and implementing development activities.
  - Provincial government recurrent and development budget allocations in the areas of:
    - environmental management
    - disaster management
    - agriculture and forestry development
    - community development
    - fisheries management and development
    - Energy
  - Major projects being implemented in the Province addressing the above areas
  - Main environmental and development issues affecting the Province, measures taken by the Provincial Government to address the issues, main capacity constraints limiting the Province from addressing the issues and measures taken to address them
  - Coordination mechanisms in place for addressing main environment and development issues:
    - With LLG
    - Within Provincial Government
    - With National Government
  - Strengths and weaknesses of these coordination mechanisms
  - Main information needs required to address environment and development issues

Further consultation were also conducted by follow-up correspondence (via e-mail), leading up to a review by stakeholders of this final document and consensus on its content, identified issues and recommendations for mitigation of capacity constraints.

During the period 8<sup>th</sup> March to the 19<sup>th</sup> March, smaller validation meetings were held on the 11<sup>th</sup> and 12<sup>th</sup> March, with a final meeting held on the 15<sup>th</sup> March to finalise the CDS.



## **2. PNG SITUATION SUMMARY**

### **2.1 Geography and environment**

PNG is the largest country in the Western Pacific Region and occupies the eastern half of the island of New Guinea, the largest equatorial island in the world. The islands of New Britain, New Ireland, Bougainville and Manus; and thousands of smaller islands are included in the sovereign territory of PNG. PNG's Exclusive Economic Zone (EEZ) is about 2,437,480 km<sup>2</sup>, with maritime borders with Australia, the Solomon Islands, Palau, and Indonesia (which it also shares a land border).

PNG is home to some 5.6 million people speaking approximately 800 languages. The population of PNG is estimated to be growing at around 3.2 % per annum.

PNG has a land area of a little over 463,000 km<sup>2</sup>, covering a remarkable range of environments from the highlands, that follow the spine of the Owen Stanley Range, which peak at 4,400 m above sea-level at Mt. Wilhelm; to the hot and humid lowland rainforests, savannahs and swamps of the coastal areas. Forest cover is the dominant vegetation in PNG.

PNG has a total coastline of approximately 17,110 km, and its coral reefs are among the most diverse in the world. Although all reef types are represented, most are fringing and/or barrier reefs, with an estimated area of 40 000 km<sup>2</sup>. Extensive mangrove forests, as well as a wide variety of productive deltaic and coastal wetlands are also well represented.

Several inland waters dominate, these include the Sepik and the Ramu Rivers in the north, and the Fly, Strickland and Purari Rivers in the south. These rivers are characterised by large flow volumes and high sediment loads, and in the upper and middle reaches are generally fast-flowing and turbulent.

The climate of PNG is determined by its near-equatorial setting, and is consequently controlled by the presence of warm humid airmasses. These are produced by the meridional or north-south movements across the equator of the Hadley Circulations which converge in the Inter-Tropical Convergence Zone, and the zonal east west moving Walker Circulations. Large-scale oceanic events such as the El Niño-Southern Oscillation (ENSO) influence PNG's environment. During an ENSO period, the pressure gradient reverses and becomes negative for a prolonged period with a consequent shift in climatic and oceanographic conditions. This major climatic shift changes the established current patterns, causing unseasonal droughts.

Rainfall ranges from 950 mm per annum in some lowland areas, to as high as 10,000 mm per annum in parts of the highlands region. In most areas there is little seasonality in the rainfall, although there is in some in drier areas, such as in the Western Province.

PNG experience two seasons annually, that of prevailing southeasterly winds, usually lasting 8-9 months, commencing in March or April where the winds blow almost continuously and often producing onshore winds up to 30 knots. The northwesterly monsoon blows between December and March. Doldrum periods follow at the end and beginning of each wind shift.

Tropical cyclones commonly develop in western Melanesia between November and April and rarely extend further north than 13° South, and hence only the most southeasterly areas of PNG, chiefly the Milne Bay Islands, are affected

## **2.2 Economy and service delivery**

PNG is rich in gold, copper, silver, nickel, cobalt, petroleum and natural gas. These have provided the country with significant export earnings and employment over the last 30 years. The most recent and significant achievements in the mineral and petroleum sector include the signing of a multi-billion dollar deal between the PNG government, banks and investors to begin work for a massive Liquid Natural Gas (LNG) project, the development of a multi-million dollar nickel mine, exploration and sampling of deep sea minerals already showing great potential and new explorations and expansion in mining of gold and other minerals.

PNG's economy during the 1990s was characterized by macro-economic instability, stagnation and increasing unemployment that contributed to an increase in law and order problems in Port Moresby and some regional areas.

PNG's economy is now on a path of recovery, though despite favourable projections under the Vision 2050 and the Development Strategic Plan (2010-2030), there are still doubts to what extent structural improvement will occur for sustained development. Furthermore, external (i.e. global economic fluctuations) as well as internal factors (e.g. the impact of the Human Immunodeficiency Virus [HIV] epidemic) may well affect the economic recovery in the near future.

PNG's infrastructure is currently poorly developed, resulting in the unequal distribution of services. The road network in particular is limited, given the remoteness and rugged terrain of PNG, which is also exacerbated by limited road maintenance. In addition, many airstrips are closed. As a result, a large part of the rural sector remains relatively inaccessible. As a result, the lives of the poorest people have changed little from the way their predecessors lived prior to the advent of colonialism and now capitalism.

Environmental constraints also exist in PNG that restrict development, in both the broadest sense of the term and in the restricted sense of village-based income opportunities, to areas with fewer environmental constraints. Over time, both economic and political forces have tended to favour the better-off places, despite development policies that have attempted to reduce this differentiation.

An impact of poverty and poor service delivery by governments is that people are moving from poor environments to rural locations near roads, with access to markets and education and health services, causing in itself, other problems, particularly those that end up in peri-urban squatter settlements.

## **2.3 Politics and governance**

PNG is a parliamentary democracy based on the Westminster model. It has three Arms of Government, namely, the Legislative Arm (National Parliament headed by the Speaker), the Executive Arm (the National Executive Council [NEC] headed by the Prime Minister who is also the Chief Executive of the National Government), and the Judiciary Arm (headed by the Chief Justice). Currently, there are 109 members of parliament with one representative from each of the 20 provinces, including the National Capital District. Elections are held every five years.

PNG has a very complex and costly decentralized system of government. At the sub-national level, there are three levels of administration, the province, district and Local Level Government (LLG). There are a total of 89 districts and 319 LLGs.

PNG faces many governance related challenges. Firstly, the political party system in PNG is characterized by alignment with tribal or regional interests, which often affects national goals and ambitions, and often contributes to the law and order problems. Corruption is considered widespread in PNG.

#### **2.4 Development strategies**

PNG together with its Melanesian neighbor, the Solomon Islands, have been described as a ‘Melanesian paradox’, well endowed, yet also very vulnerable. PNG is blessed with rich natural resources and is beginning to benefit from an avalanche of investments and revenue to be generated from its rich reserves of LNG, oil and minerals. In terms of human resources, PNG boasts a cultural diversity per unit area of land unparalleled in the world and has an increasing pool of qualified and technically competent human resources in many fields of work.

Despite the impressive natural and human resource endowments the majority of PNG’s population in the rural settings and its rich biodiversity remain very vulnerable to the impacts of climate change, economic stresses, hazards and natural disasters. Much of this can be attributed to high exposure of many areas to climate and non-climate related disasters, weak governance, limited reach of government services to many remote locations, and law and order problems. The extent of vulnerability is also reflected in the very low human development indicators of PNG compared to its Pacific neighbors. PNG was ranked 149 of 179 countries in 2008.

In the past, PNG’s national economic policies have not overtly recognized the sustainable economic benefits possible from utilising the country’s biodiversity. Instead, due to a variety of reasons, biodiversity has been threatened by unsustainable activities aimed at short-term economic gain. There is now a renewed commitment to effecting change for the better. The government of PNG has just recently launched the long term Vision 2050 in November 2009, and the DSP in March 2010. The Vision 2050 is premised on the important and mutually reinforcing roles of economic growth, human development and environmental management and is based on seven strategic focus areas or pillars of development, including climate change and environmental sustainability (which is listed as Pillar 6).

Vision 2050 is supported by the DSP; the Medium-Term Strategic Plan (MTDS, 2010-2015); the Environmentally Sustainable Economic Growth (ESEG) Policy; the currently formulated CCDP, and many other sector policies and strategies. Added to this list are PNG’s modified national targets for the Millennium Development Goal (MDG) No. 7, which focuses on ‘Environmental Sustainable Development’.

#### ***Vision 2050***

The Vision 2050 offers a more holistic approach to PNG’s developmental challenges, and targets a 40 year period from 2010-2050. The ‘ideal’ of the Vision 2050 is that, the significant revenue projections from the mining, gas and oil projects are managed so that PNG develops and builds a solid and sustainable economic foundation based on renewable sectors. These renewable sectors are agriculture, forestry, fisheries and eco-tourism.

The Vision 2050 has seven strategic focus areas, and these are:

- Strategic Planning Integration and Control,
- Institutional Development and Service Delivery,
- Human Capital Development, Gender, Youth and People Empowerment,
- Wealth Creation,
- Security and International Relations,
- Climate Change and Environmental Sustainability, and
- Spiritual, Cultural and Community Development.

Of importance to the NCSA is the strategic focus area focused on ‘Climate Change and Environmental Sustainability’, whereby the Vision 2050 proposes that all environmental management systems are to be sustainable by 2015. To achieve this, DEC will also have to build capacity and cooperation with other government agencies and stakeholders. Activities listed under this strategic focus area will require DEC, in collaboration with other government agencies and stakeholders to develop:

- sound policies and legal frameworks for sustainable management of natural resources;
- sound institutional framework for sustainable management of natural resources; and a
- world-class education, research and training framework for sustainable management of natural resources.

### ***Development Strategic Plan***

The DSP is aimed at transforming PNG from a low income to middle income country by 2030. To achieve this, PNG plans to quadruple its Gross Domestic Product (GDP), with a sustained economic growth of 8 % per annum, creating over two million job, reducing crime by 55 %, and opening up 20 % of customary land to commercial uses.

‘Pockets of poverty’ will be targeted under the DSP, through ten ‘Economic Corridors’. Poverty in PNG is primarily rural, and is associated with usually the most isolated communities that have poor access to services, markets, and transportation; and/or are environmentally disadvantaged, whereby development has not occurred to any extent and where a number of severe constraints make it unlikely to occur. Investment in these Economic Corridors, will hope to stimulate economic activity, reduce law and order problems and reverse rural-urban drift.

The DSP therefore sets a broad framework, targets, and strategies to achieve the vision of the government, the Vision 2050. Under the DSP, all sector policies, plans and strategies are to be re-aligned to the DSP.

Expectations of the DSP include:

- a road network of 25,000 km,
- 70 % of the population having access to electricity,
- 500,000 people with HIV saved,
- a five-fold increase in agriculture output,
- 80 % of forest products processed on shore for export,
- A doubling of revenue generated from tuna taxes and fees, and
- A tripling of PNG’s manufacturing output.

The DSP is to be implemented through the next four MTDSs. Each MTDS will consist of a five-year plan and will be costed out in the Medium-Term Resource Framework, which is linked to the Medium-Term Fiscal Strategy and the Medium-Term Debt Strategy.

### ***Medium-Term Development Strategy***

The MTDS is the medium for translation of the Vision 2050 and the DSP into on-the-ground functionality. Of relevance to the NCSA is the MTDS 4<sup>th</sup> Principle on ‘National Endowments’, which is to maximise the value of PNG’s natural resources and environment through sustainable primary production and downstream processing, with a focus on agriculture, forestry, fisheries and tourism supported by mining, petroleum and gas.

A key concern about the current MTDS is that it does not provide a clear nexus between the priorities identified by the MTDS and sustainable development. The MTDS makes a brisk mention of sustainable development and ties it loosely with forestry and fisheries resources

development, but it fails to clearly provide the strategy to achieve sustainable development, not only in these two sectors, but also at the national level overall, rather using the term 'environment' in relation to 'enabling environments' for economic growth, rather than conservation of the environment for sustainable growth. This will need to be reviewed in forthcoming MTDSs.

### ***Environmentally Sustainable Economic Growth Policy***

During the NCSA stock-take and thematic assessments, DEC was in the process of finalizing the ESEG Policy. This policy, when finally approved by the NEC marks a paradigm shift in DEC's approach to environmental management and conservation from an approach that is primarily focused on protecting the environment and biodiversity with legislation, regulations and promotion of voluntary compliance. The ESEG policy will now enable DEC to promote and facilitate greater economic (and social) development in a manner which ensures environmental values are maintained at a level of quality; which is useful and acceptable to the community; and one that can maintain ecological systems nationally, whilst enabling the sustainability of the development activities that they support.

DEC has a vital role providing the regulatory framework for effectively monitoring and enforcing so as to ensure economic growth is indeed environmentally sustainable. DEC is currently developing an Environmental Protection Agency (EPA) to achieve this.

As part of the ESEG policy, DEC will also need to develop new approaches on payment for environmental services, and biodiversity conservation through carbon sequestration (i.e. REDD+) and other innovative economic instruments.

The collation and collection of key national scientific and technical information and data will also be crucial aspect of planning for ESEG decision-making and action. Without the necessary information, baselines will not be identified and proper planning will be more difficult. DEC needs to clearly illustrate to other government agencies and stakeholders, the underlying economic values associated with maintaining a healthy environment (e.g. high biodiversity, proper ecosystem functioning and a sustainable resource based), and the very real and potentially high economic costs that accompany environmental degradation.

The ESEG policy is still being drafted, but seven comprehensive goals have already been identified, these are:

- Goal 1: Effective Institutional Framework and Legislation
- Goal 2: Sustainable Resource Management and Conservation
- Goal 3: Mainstreaming Environment and Integrated Planning
- Goal 4: Participation and Partnerships in Environmental Governance
- Goal 5: Empowerment and Environmental Education
- Goal 6: Information Management
- Goal 7: International Cooperation

Activities under these seven goals, if supported and implemented properly, will significantly enhance PNG meeting its obligations to the three 'Rio' conventions.

DEC has also developed its New Strategic Directions, which is designed to progress the implementation of the ESEG. At the time of the NCSA, DEC was in the advanced stage of restructuring and reforming DEC to be able to carry out its revised mandate.

The reform process commits DEC to:

- strengthening the DEC's capacity for developing, and facilitating the implementation of, policies for sustainable natural resource management consistent with the ESEG policy;
- strengthening the role of Provincial and LLGs and the private sector for environment regulation through a 'Streamlining and Strengthening Environmental Regulation' initiative;
- developing a Partnerships and Resource Mobilisation initiative to create external and internal partnerships to assist with financing and on-ground implementation of the ESEG policy; and
- strengthening agency performance through an internal systems and governance review consistent with the Public Sector Review processes.

### ***Climate Compatible Development Plan***

The Office of the Prime Minister has commissioned the development of a CCDP, which will strengthen mainstreaming of climate change adaptation and mitigation into the different sectors, allowing PNG to engage in the REDD+ mechanism through a low carbon strategy for the country.

It is thought that climate-compatible development has the potential to broaden the base of the economy in PNG, reducing reliance on natural resource exports and enhancing the earning power of smallholder farmers and forest communities.

Climate-compatible development should also contribute to food security by enhancing agricultural productivity and to rural development through small-scale electrification, infrastructure development and service provision.

### ***Millennium Development Goal, No.: 7***

The MDG framework is the cornerstone by which national development efforts are to be judged by the global community, though most of the global targets are vague and need to be defined more precisely.

In response to this, PNG has attempted to replace these global targets with more meaningful and precise national targets. These national MDG targets for 2015 are also reflected in PNG's MTDS.

The ESEG policy process will support the MDG 7, and will also support monitoring of progress towards sustainability under the current MTDS (and thus the DSP, and the Vision 2050), and in particular an increased focus on environment sustainability issues for use in the design of the next MTDS.

Of the four targets under PNG's MDG 7, two are explicit to the NCSA, these are:

- Target 13 – Implement the principles of sustainable development through sector specific programmes by 2010 and no later than 2015; and
- Target 14 – By 2020, increase commercial use of land and natural resources through improvements in environmentally friendly technologies and methods of production (Table 1).

**Table 1: MDG 7 targets and indicators**

Target	Indicator
<b>Target 12:</b> Implement the principles of sustainable development through sector specific programs by 2010 and no later than 2015	<ul style="list-style-type: none"> <li>• Percentage of land area covered by primary forest</li> <li>• Primary forest depletion rate (percentage) per year</li> <li>• Re-forestation rate (percentage) per year</li> <li>• Percentage of land area protected to maintain biological diversity</li> <li>• Percentage of marine area protected to maintain biological diversity</li> <li>• Percentage of land area rehabilitated to ensure biodiversity (mines)</li> <li>• GDP per unit of energy use (as proxy for energy efficiency)</li> <li>• Carbon dioxide emissions (per capita)</li> <li>• Percentage of land used for commercial purposes</li> <li>• Percentage of cultivable land used for agricultural production</li> </ul>
<b>Target 13:</b> By 2020, increase commercial use of land and natural resources through improvements in environmentally friendly technologies and methods of production	<ul style="list-style-type: none"> <li>• Agricultural exports as a percentage of all exports</li> <li>• Value of agricultural exports as a per cent of total GDP</li> <li>• Value of non-agriculture exports as a per cent of GDP</li> <li>• Percentage of commercial operations using sustainable practices</li> </ul>

The management arrangements for the domestic implementation strategy for the MDG 7 have been endorsed by the NEC. The key components are:

- a National MDG 7 Taskforce, which is chaired by the Chief Secretary, and comprising government departmental secretaries of the Central Agency Coordinating Committee;
- a MDG 7 Technical Committee which is chaired by the Secretary of the DEC and supports coordination amongst other government agencies with interests in the initiative and guidance to DEC, the implementing agency; and
- DEC as the Implementing Agency has primary responsibility in managing a series of organisational, policy and technical assessments which will provide the basis for developing the MDG 7 implementation strategy.

Unfortunately, due to the extremely incomplete and deficient database and many other factors, the national MDG 7 targets incorporated in the MTDS are as equally vague as their global counterparts. DEC through UNDP's Capacity Strengthening Project is currently looking at the revision of suitable indicators for the MDG 7.

It is absolutely essential that the DEC assumes a leading role with regards to the collection, processing, management and analysis of all the data required for the monitoring of MDG 7 Indicators, with the already modified national targets revisited and having most of them replaced by unambiguous and measurable indicators.

#### ***Multilateral Environmental Agreements***

Since attaining political independence in 1975, the government of PNG has ratified and acceded to close to 50 Multilateral Environmental Agreements (MEAs) to demonstrate its commitment to addressing global and national environmental and sustainable development challenges, with the most important of these, being the Rio Conventions (See Appendix B for a full list of MEAs that have been either signed or ratified by PNG).

Experiences throughout the developing world have shown that ongoing national efforts to address environmental challenges and implement MEAs invariably incur incremental costs on the part of countries and in many instances place added strain on national resources and capacities.

### ***Other sustainable development mechanisms***

PNG is also bound by several other global and regional mandates for sustainable development, these are:

- Agenda 21's Chapter 17 (1992), which calls for the protection and rational use and development of oceans and coastal areas;
- the Barbados Program of Action (1994), which outlines national, regional and international stakeholders' responsibilities for the sustainable use of coastal and marine resources, and requirements for integrated multi-hazard approaches to address vulnerability, risk assessment and disaster management;
- the Johannesburg Plan of Implementation (2002), which identified the need to protect and manage the natural resource base of economic and social development; and
- the Pacific Plan - Whilst management of the natural environment or biodiversity conservation are not central themes of the Pacific Plan, there is overt reference to '*Improved Natural Resource Management and Environmental Management*' in the plans Strategic Objective no. 5, with initiatives being promoted for the first three years in: sustainable development, fisheries, forestry, coastal waters, waste management, energy, freshwater management, biodiversity and climate change.

### **2.5 National laws, regulations and policies**

PNG has established many policies, laws and regulations over the past years that govern and guide its functions, including those related to natural resources management, environmental protection and economic development (Table 2). Their application and enforcement remain a perennial challenge with interrelated problems that cannot easily be addressed over a short period through projects. Furthermore, government institutions continue to have limited financial, technical and human resources to monitor development activities and enforce legislations and regulations many of which are sector specific.

**Table 2:** National laws, regulations and policies by sector

<b>Sector</b>		
<b>Agriculture</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>• Department of Agriculture and Livestock</li> <li>• National Agriculture Research Institute</li> <li>• National Agricultural Quarantine Inspection Authority</li> <li>• Industry Corporations</li> </ul>	<ul style="list-style-type: none"> <li>• Information management</li> <li>• Establishment and management of large agriculture projects</li> <li>• Subsistence agriculture</li> <li>• Analysis laboratory</li> </ul>	<ul style="list-style-type: none"> <li>• National Agricultural Policy</li> <li>• Agriculture Development Plan 2007-2016</li> <li>• National Food Security Policy 2000-2010</li> <li>• Paper on Agriculture: 2005-2014</li> <li>• National Agriculture Development Strategy; Horizon 2002-2012</li> <li>• National Agricultural Research Institute Act 1996</li> <li>• National Agricultural Quarantine Inspection Authority Act 2000</li> <li>• Plant Genetic Resources Strategy for Papua New Guinea 2005 (NARI)</li> <li>• <i>Draft Papua New Guinea National Plant Genetic Resources Policy 2003 (DAL)</i></li> <li>• <i>Draft Plant Genetic Resources Strategy for Papua New Guinea 2005 (NAQIA)</i></li> <li>• Cocoa Industry Acts and Regulations</li> <li>• Copra Industry Acts and Regulations</li> <li>• Coffee Industry Acts and Regulations</li> </ul>
<b>Community Development</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>• Department of Community Development</li> </ul>	<ul style="list-style-type: none"> <li>• Community development</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated Community Development Policy 2007</li> </ul>



Education and Research	Functions	Legislation and Policies
<ul style="list-style-type: none"> <li>• Department of Education</li> <li>• Forest Research Institute</li> <li>• Institute of National Affairs</li> <li>• Institute of PNG Studies</li> <li>• Institute of Sustainable Marine Resource Management</li> <li>• Melanesian Institute</li> <li>• National Agriculture Research Institute</li> <li>• National Cultural Commission</li> <li>• National Museum</li> <li>• National Research Institute</li> <li>• New Guinea Binatang Research Centre</li> <li>• PNG University of Technology</li> <li>• Timber Industry Training College</li> <li>• University of Goroka</li> <li>• PNG University of Natural Resources and Environment</li> <li>• University of Papua New Guinea</li> <li>• Bulolo Forestry College</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental education</li> <li>• Environmental planning, assessment and monitoring</li> <li>• Natural resource research and collections</li> </ul>	<ul style="list-style-type: none"> <li>• National Education Plan 2005-2014</li> <li>• Institute of Biodiversity Act 2008</li> </ul>
Environment	Functions	Legislation and Policies
<ul style="list-style-type: none"> <li>• Department of Environment and Conservation</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental impact assessment</li> <li>• Environment policy development</li> <li>• Pollution control</li> <li>• Management of water resources</li> <li>• Conservation of flora and fauna</li> <li>• Establishment of protected areas</li> <li>• Biodiversity data management</li> <li>• Administration of MEAs</li> </ul>	<ul style="list-style-type: none"> <li>• Environment Act 2000</li> <li>• National Parks Act 1982</li> <li>• Conservation Areas Act 1980</li> <li>• Fauna (Protection and Control) Act 1976</li> <li>• International Trade in Fauna and Flora Act 1993</li> <li>• Crocodile Trade (Protection) Act 1974</li> <li>• National Biodiversity Strategy and Action Plan 2007</li> <li>• Institute of Biodiversity Act 2008</li> <li>• <i>Draft Papua New Guinea's National Biosafety Framework 2005</i></li> </ul>

<b>Finance and Planning</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>• Department for National Planning and Monitoring</li> <li>• National Research Institute</li> </ul>	<ul style="list-style-type: none"> <li>• Economic and social planning</li> <li>• Socio-economic impact assessments</li> </ul>	<ul style="list-style-type: none"> <li>• National Population Policy 2000-2010</li> <li>• Medium Term Development Strategy 2010-2015</li> </ul>
<b>Fisheries</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>• National Fisheries Authority</li> <li>• Institute of Sustainable Marine Resources</li> </ul>	<ul style="list-style-type: none"> <li>• Management and development of the fisheries sector</li> <li>• Stock assessments</li> </ul>	<ul style="list-style-type: none"> <li>• Fisheries Act 1998</li> <li>• Fisheries Regulation 2000</li> <li>• Tuna Management Plan</li> <li>• Beche-de-mer Management Plan</li> <li>• Lobster Management Plan</li> <li>• Gulf of Papua Prawn Management Plan</li> <li>• Shark Fishery Management Plan</li> <li>• National Aquaculture Policy</li> <li>• National Tuna Longline Policy</li> <li>• Fishing Aggregating Device Management Policy</li> <li>• Barramundi Management Plan</li> <li>• Torres Strait Lobster Fishery</li> <li>• Trail Fishing Policy</li> </ul>
<b>Foreign Affairs</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>• Department of Foreign Affairs and Immigration</li> <li>• Department of Justice and the Attorney General</li> </ul>	<ul style="list-style-type: none"> <li>• International treaties and conventions</li> </ul>	
<b>Forestry</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>• PNG Forest Authority</li> <li>• National Forest Service</li> <li>• Forestry Research Institute</li> <li>• National Herbarium</li> </ul>	<ul style="list-style-type: none"> <li>• Management and development of the forest sector</li> </ul>	<ul style="list-style-type: none"> <li>• Forestry Act 1991</li> <li>• National Forestry Policy 1991</li> <li>• National Forestry Development Guidelines</li> <li>• National Forest Plan</li> <li>• PNG Logging Code of Practice 1996</li> <li>• <i>Draft Carbon Trade Policy</i></li> <li>• <i>Draft Forestry and Climate Change Policy Framework for Action 2008-2015</i></li> <li>• <i>Draft National Eco-forestry Policy 2005</i></li> </ul>
<b>Health</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>• Department of Health</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment and monitoring of environmental contamination</li> <li>• Environmental health</li> </ul>	<ul style="list-style-type: none"> <li>• National Population Policy 2000-2010</li> </ul>
<b>Lands</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>• Department of Lands and Physical Planning</li> </ul>	<ul style="list-style-type: none"> <li>• Acquisition and allocation of land</li> <li>• Land use planning</li> </ul>	<ul style="list-style-type: none"> <li>• Land Act 1996</li> <li>• Land Dispute Settlement Act 1975</li> <li>• Physical Planning Act 1989</li> </ul>
<b>Mining</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>• Department of Mining</li> <li>• Mineral Resources Authority</li> <li>• Department of Petroleum and Energy</li> </ul>	<ul style="list-style-type: none"> <li>• Management and development of the mineral resources sector</li> <li>• Monitoring of mining operations</li> </ul>	<ul style="list-style-type: none"> <li>• Mining Act and Regulation 1992</li> <li>• Mineral Resources Authority Act 2005</li> <li>• Sustainable Mining Policy</li> <li>• Mine Closure Policy</li> <li>• Offshore Mineral Policy</li> </ul>

<b>Law</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>Department of Justice and the Attorney General</li> <li>PNG Constabulary</li> </ul>	<ul style="list-style-type: none"> <li>Enforcement of legislation</li> </ul>	<ul style="list-style-type: none"> <li>Attorney-General Act 1989</li> <li>Police Act 1998</li> </ul>
<b>Petroleum and Energy</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>Department of Petroleum and Energy</li> </ul>		<ul style="list-style-type: none"> <li>Electricity Industry Policy 2009</li> </ul>
<b>Prime Minister</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>Department of the Prime Minister</li> <li>Office of Climate Change and Environment Sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Information and land awareness</li> <li>MDGs monitoring</li> </ul>	<ul style="list-style-type: none"> <li>National Strategic Plan 2010-2050</li> <li><i>Draft National Climate Change Policy Framework for Papua New Guinea 2008</i></li> <li><i>Draft Climate Compatible Development Plan</i></li> </ul>
<b>Provincial Affairs</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>Department of Provincial and Local Level Government Affairs</li> </ul>	<ul style="list-style-type: none"> <li>Enforcement of legislation</li> </ul>	<ul style="list-style-type: none"> <li>Organic Law on Provincial Governments and Local-Level Governments 1995</li> <li>Disaster Risk Reduction and Disaster Management National Framework for Action 2005-2015</li> </ul>
<b>Transport</b>	<b>Functions</b>	<b>Legislation and Policies</b>
<ul style="list-style-type: none"> <li>NSMA</li> <li>Department of Transport</li> </ul>	<ul style="list-style-type: none"> <li>Management of pollution</li> </ul>	<ul style="list-style-type: none"> <li>Marine Pollution (Liability and Cost Recovery) Bill</li> <li>Marine Pollution (Preparedness and Response) Bill</li> <li>Marine Pollution (Ships and Installation) Bill</li> <li>Marine Pollution (Sea Dumping) Bill</li> </ul>

### 3. THE UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY

#### 3.1 Biodiversity in PNG

PNG has an extraordinary range of ecosystems because of its geographical and geological complexity. It ranks in the top 20 most biologically diverse countries in the world, and is home to between an estimated 5-7 % of the world's total number of animal and plant species.

It is estimated there are between 15,000 and 20,000 native plant species, of which possibly 60 % are thought to be endemic, including the world's largest orchid, *Grammatophyllum papuanum*, and the klinkii pine (*Araucaria hunsteinii*), which is recognised as the world's tallest tropical tree.

PNG has around 400 endemic species out of the total 719 identified native species. Ninety percent of all Birds of Paradise species making PNG their home, along with a vast array of parrots, including the world's smallest parrots (*Micropsitta spp.*), the world's largest pigeon, the Victorian crowned pigeon (*Goura victoria*), and the world's only poisonous bird, *Pitohui spp.*

The reptilian fauna includes two species of crocodile (an endemic freshwater species and the widely distributed salt-water crocodile); 13 species of turtle, of which, seven are freshwater species, and three of these seven being endemic; 195 species of lizards, including the world's longest lizard (*Varanus salvadorii*) and 98 species of snakes, of which about 60 % are thought to be endemic. There are 266 described species of amphibians, the majority of which are endemic, and include the world's largest tree frog (*Litoria infrafrenata*).

It has been estimated that there are 300,000 native insect species in PNG, including the world's largest butterfly, the Queen Alexandra's birdwing butterfly (*Ornithoptera alexandrae*).

Although less than 291 species of mammals (271 are terrestrial, 25 are marine species) occur in PNG, these include approximately 70 species of marsupials, of which 60 % are considered to be endemic, and two species of monotremes, including the long-beaked echidna which is the world's largest monotreme. PNG is home to 75 species of bats, including the world's largest bat, the Bismarck flying fox (*Pteropus neohibernicus*).

#### 3.2 Threats to biodiversity

PNG currently has a population of just over six million people, with an estimated 85 % of these people living predominately subsistence lifestyles that are dependent on PNG's biodiversity and supporting ecosystems.

In recent years, the sustainable capacity of these ecosystems to continue to support PNG's rural population has come under threat, particularly from PNG's rapidly growing population. During the last 40 years, the annual population growth rate in PNG has remained high, doubling every 30 years.

An ever increasing population means greater demands on PNG's biodiversity and natural resources. Previous estimates suggest that given the continued trajectory for population growth in PNG that all arable land in PNG will have to be used to meet the food demands of the growing population by 2025, with the expectation that in the longer-term, high population growth rate will outstrip the capacity of the land to support adequate subsistence food production. These demands stem in part, from the underlying expectation of all people in PNG that development will bring an improved quality of life with improved service delivery, and increasing opportunities for personal income generation and the economic benefits these would bring. At the core of these demands is the exploitation of biodiversity and natural resources for revenue generation, both by government

and by the local people, particularly in rural areas that lack employment opportunities. In the absence of well-developed commercial and employment sectors, government has to rely on taxes and royalties from the exploitation of its natural resources as a principal source of revenue.

### **3.3 The UNCBD**

The UNCBD was negotiated in the light of growing international recognition of and concern over the loss of the world's biological diversity; and is a direct outcome of the United Nations Conference on Development held in Rio de Janeiro, Brazil in June, 1992. PNG, along with many other countries signed the convention at that time, indicating its commitment to the UNCBD's objectives; and ratified the UNCBD in March 1993.

The UNCBD takes a comprehensive, eco-system approach to the conservation and sustainable use of biological diversity, and by explicitly coupling the conservation of biological diversity with rights to control access to genetic resources and to share benefits deriving from their utilization. Thus it potentially offers important opportunities to biodiversity-rich developing countries, like PNG, to take action to develop, manage and conserve their biological resources.

To do this, the UNCBD adopts a country-driven approach, expressing overall goals, policies and obligations in general terms, but leaving decision making as to the priorities, specific action and mechanisms for implementation, largely to the national level. It also allows for further development of its provisions through decisions taken at regular meetings of the Parties and through the elaboration of further annexes and protocols, such as the Cartagena Biosafety Protocol (CBP).

On signing the UNCBD in 1993, PNG also committed itself to protecting:

- 10 % of PNG's land in Protected Areas (PAs) by 2010, and
- 10 % of PNG marine area in Marine Protected Areas (MPAs) by 2012.

This commitment to increasing PAs has also been incorporated into PNG's MDGs, and will be used to measure objectives against PNG's specific nationally tailored MDG 7 indicators – Target 12.

There are 42 Articles and two annexes in the UNCBD. The guiding objectives that are applicable to PNG are translated into binding commitments and obligations on Parties, and are articulated in detail under the provisions contained in Articles 5 to 22 and 26 (Table 3). Under the UNCBD, there are also several thematic and cross-cutting areas (which also encompass several programmes of work) that are of relevance to PNG (Table 3).

**Table 3: UNCBD articles, thematic areas and cross-cutting themes**

Articles	Thematic Areas	Cross-cutting Themes
<ul style="list-style-type: none"> <li>• 5. Cooperation</li> <li>• 6. General Measures for Conservation and Sustainable Use (i.e. its NBSAP)</li> <li>• 7. Identification and Monitoring</li> <li>• 8. In-situ Conservation</li> <li>• 9. Ex-situ Conservation</li> <li>• 10. Sustainable Use of Components of Biological Diversity</li> <li>• 11. Incentive Measures</li> <li>• 12. Research and Training</li> <li>• 13. Public Education and Awareness</li> <li>• 14. Impact Assessment and Minimizing Adverse Impacts</li> <li>• 15. Access to Genetic Resources</li> <li>• 16. Access to and Transfer of Technology</li> <li>• 17. Exchange of Information</li> <li>• 18. Technical and Scientific Cooperation</li> <li>• 19. Handling of Biotechnology and Distribution of its Benefits</li> <li>• 20. Financial Resources</li> <li>• 21. Financial Mechanism</li> <li>• 26. Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural biodiversity</li> <li>• Dry and sub-humid lands biodiversity</li> <li>• Forest biodiversity</li> <li>• Inland waters biodiversity</li> <li>• Island biodiversity</li> <li>• Marine and coastal biodiversity</li> <li>• Mountain biodiversity</li>   <li>• Protected Areas</li> </ul>	<ul style="list-style-type: none"> <li>• 2010 biodiversity target</li> <li>• Access to genetic resources and benefit-sharing</li> <li>• Biological diversity and development</li> <li>• Climate change and biological diversity</li> <li>• Communication, education and public awareness</li> <li>• Economics, trade and incentive measures</li> <li>• Ecosystem approach</li> <li>• Global Strategy for Plant Conservation</li> <li>• Global Taxonomy Initiative</li> <li>• Impact assessments</li> <li>• Indicators</li> <li>• Invasive alien species</li> <li>• Liability and redress</li> <li>• Protected areas</li> <li>• Public education and awareness</li> <li>• Sustainable use of biodiversity</li> <li>• Technology transfer and cooperation</li> <li>• Tourism and biodiversity</li> <li>• Traditional knowledge, innovations and practices</li> </ul>

Under the UNCBD, PNG is subsequently obliged to:

- Develop a National Biodiversity Strategy and Action Plans (NBSAPs) (Article 6)
- Identify and monitor components of biological diversity (Article 7)
- Create a system of protected areas to conserve biological diversity (Article 8);
- Develop mechanisms for the prevention and the introduction of, control or eradication of alien species which threaten ecosystems (Article 8);
- Develop systems for the preservation and maintenance of knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application through appropriate legal, policy and administrative arrangements (Article 8);
- Adopt measures for the *ex-situ* conservation of components of biological diversity (Article 9)
- Protect and encourage customary use of biological resources in accordance with traditional and cultural practices (Article 10);
- Develop incentive measures for the sustainable use and management of the country's biological resources (Article 11);
- Promote research and training (Article 12);
- Promote and strengthen public education and training in biological resources management (Article 13);
- Introduce mechanisms to strengthen impact assessment and minimizing adverse impacts on the country's biological diversity (Article 14);
- Develop strategies that promote access to genetic resources (Article 15);
- Identify and strengthen strategies to access and transfer technology (Article 16);

- Facilitate the exchange of information (Article 17);
- Promote international technical and scientific cooperation (Article 18);
- Introduce legislative, administrative or policy measures to regulate and manage biotechnology research and benefit sharing (Article 19);
- Strengthen partnerships to promote access to financial resources (Articles 20 and 21); and
- Report to the Secretariat of the UNCBD (Article 26).

### **3.4 The Cartagena Biosafety Protocol**

The CPB was adopted as a supplementary agreement by the Conference of the Parties (CoPs) to the UNCBD in January 2000, which PNG ratified in 2006. The CPB seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from biotechnology by establishing an advance informed agreement procedure. This procedure ensures that countries are provided with the information necessary to make informed decisions before agreeing to import living modified organism. The CPB contains reference to a precautionary approach and establishes a Biosafety Clearing House to facilitate the exchange of information on living modified organisms and to assist countries in the implementation of the CPB.

Under the CBP, PNG is subsequently obliged to:

- Develop appropriate legal, administrative and other measures to implement its obligations under this Protocol (Article 2);
- Enter into bilateral, regional and multilateral agreements and arrangements regarding intentional transboundary movements of living modified organisms (Article 14);
- Establish and maintain appropriate mechanisms, measures and strategies to regulate, manage and control risks (Articles 15 and 16);
- Establish mechanism for notification of any unintentional transboundary movement of a living modified organism that is likely to have significant adverse effects on the conservation and sustainable use of biological diversity (Article 17);
- Develop mechanism for appropriate handling, packaging and transportation of any intentional transboundary movement (Article 18);
- Designate one national focal point and one or more competent national authorities (Article 19);
- Establish a Biosafety Clearing-House (Article 20);
- Establish mechanism for the transmission of confidential information (Article 21);
- Strengthen partnerships for the development and/or strengthening of human resources and institutional capacities in biosafety (Article 22);
- Promote and facilitate public awareness, education and participation concerning the safe transfer, handling and use of living modified organisms in relation to the conservation and sustainable use of biological diversity, taking also into account risks to human health (Article 23);
- adopt appropriate domestic measures aimed at preventing and, if appropriate, penalizing transboundary movements of living modified organisms carried out in contravention of its domestic measures (Article 25); and
- Monitor and report progress to the Secretariat (Article 33).

### **3.5 PNG's NBSAP**

As noted above, the UNCBD requires Parties to develop national strategies, plans and programmes for the conservation and sustainable use of biological diversity, or to adapt existing plans or programmes for this purpose under Article 6(a). Furthermore Article 6(b) stresses the importance of integrating (or rather 'mainstream') the conservation and sustainable use of biodiversity into relevant sectoral or cross-sectoral plans, programmes and policies into national decision-making. Implementation of Article 6(b) is clearly a more complex undertaking, requiring an assessment of the impacts of other sectors on biodiversity conservation and

sustainable use. It also requires co-ordination among government agencies and other stakeholders.

The PNG NBSAP was initially started as an associated activity with the World Bank, but was terminated in April, 2002 due to concerns over fiscal management. PNG finally completed a summary version of its NBSAP in 2007, though a complete NBSAP has never been released.

The current summary version of PNG’s NBSAP has six goals, these are to:

- conserve, sustainably use, and manage the country’s biological diversity;
- strengthen and promote institutional and human capacity building for biodiversity conservation, management and sustainable use;
- strengthen partnership and promote coordination for conserving biodiversity;
- strengthen existing protected areas and ensure that protected areas for terrestrial species and marine species are increased to 10% by 2010 and 2012 respectively;
- ensure a fair and equitable sharing of benefits arising out of genetic and ecosystem resources; and
- promote and strengthen research of the country’s biological diversity and the sustainable development of the country’s biological resources.

These Goals are to be achieved through nine broad programmes, which are prioritized into four categories (Table 4).

**Table 4:** NBSAP programmes

Priority	Programmes
1	1. Policy, legislation and administration 2. Financial and technical resources 3. Human capacities
2	4. Access and Benefit Sharing
3	5. Research and information on biodiversity 6. In-situ and ex-situ biodiversity conservation
4	7. Measures of sustainability of biodiversity use, and incentives and alternatives 8. Education and public awareness 9. Monitoring, evaluation and adaptive management (cross-cutting over all other programmes)

Although DEC has led the preparation of the NBSAP, it has not been able to fully implement many of the activities (see below) because of resource and capacity constraints, and there is still no co-ordinating mechanism for its implementation.

A reason for the lack of any coordinating mechanism for NBSAP implementation in PNG is due in part to the fact that the NBSAP status is unclear and is currently being reviewed. To assist this future implementation, this review process should also investigate if NBSAP’s goals and programs also meet the objectives and activities of the yet to be fully developed ESEG policies, and to see if it is in alignment with the Vision 2050, the DSP, the MTDS, the CCDP and the MDG 7 goals; as well as UNCBD’s Program of Works on Protected Areas (PoWPA).

The review of the NBSAP should identify:

- measures that might be taken to conserve and sustainably use biodiversity;
- obstacles, including financial, human and technological, to such measures being taken;
- indicators and targets against which PNG can measure progress towards stated objectives, for monitoring and evaluation purposes, and which could also be used for the UNCBD four yearly reporting processes;



- government agencies and other stakeholders which might have a role in biodiversity conservation and allocate responsibilities amongst them, and finally
- protocols for reporting on activities by DEC, other government agencies and stakeholders through the promotion of MoUs with fixed reporting systems; requirements for proposed projects to meet the NBSAP objectives, etc.

The current summary NBSAP is essentially a list of activities under its various identified programmes. It does not yet however, have any identified actionable planning activities and/or mechanisms for monitoring and evaluation (Table 5).

**Table 5:** NBSAP activities and status

Activity	Status
Have objectives and actions of the NBSAP been clearly identified?	To a degree
Do actions identify local specific work to be undertaken?	Yes
Does the NBSAP have an overall time-frame?	Not really
Has a timeframe for implementation been set against each objective and/or activity?	No
Have objectives and/or activities been prioritised, and have these been highlighted in the NBSAP?	No
Has the lead agency responsible for overall NBSAP implementation been identified?	Yes
Has the lead agency been identified against each activity?	No
Does the NBSAP outline the non-economic values of biodiversity?	No
Does the NBSAP outline the economic values of biodiversity in monetary terms?	No
Have separate implementation plan(s) been developed since the NBSAP production?	Yes

The NBSAP is not a static document; rather it should be a dynamic, responsive ‘process’ that accepts changes, addendums, additions and alterations as the needs arise. Overall, the NBSAP will require adequate resources and coordination, as well as effective and regular monitoring and evaluation to make it viable. As objectives and actions are met and achieved, the NBSAP can be renewed and reassessed to address the remaining challenges to biodiversity conservation observed.

### 3.6 UNCBD Articles and NBSAP alignment

Tables 6 to 26 below, detail the general alignment of NBSAP activities against the UNCBD articles and the current status of these activities.

**Table 6: Article 6 – General Measures for Conservation and Sustainable Use**

Section	Associated NBSAP Activity	Status
<p>(a) Develop national strategies, plans or programmes for the conservation and sustainable use of biodiversity or adapt for this purpose existing strategies, plans or programmes.</p>	<p>Program 1: Develop a national policy statement on biodiversity.</p>	<p>Summary NBSAP completed. Summary NBSAP currently under review. To be conducted through the ESEG policy development.</p>
	<p>Program 1: Develop a national protected areas policy.</p>	<p>To be conducted through the ESEG policy development. PAs currently captured in various legislation under DEC’s mandate, requires a legislative review to make PA establishment easier and in line with other initiatives such as REDD+, the ESEG policy, CCDP, MTDS and NSP. New Conservation Needs Analysis under the UNCBD’s PoWPA progressed with recent support from TNC and the Bishop Museum. RAPPAM draft completed by WWF in 2006 with recommendations originally targeted to be implemented by 2010, this needs to be done after review of alignment with the ESEG policy, MTDS and NSP. RAPPAM still needs to be launched by WWF and endorsed by DEC.</p>
<p>(b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biodiversity into relevant sectoral or cross-sectoral plans, programmes and policies.</p>	<p>Program 1: Review the functions of PINBio immediately to strengthen biodiversity conservation programs.</p>	<p>Little progress.</p>
	<p>Program 1: Review and update the national legislation to ensure complementarily in sustainable resource use and the incorporation of biodiversity conservation considerations including protection of intellectual property.</p>	<p>To be conducted through the ESEG policy development. Conservation Area Act (CAA) enacted for the first time in 2008 for YUS Tree Kangaroo Program.</p>
	<p>Program 5: Review the research and development programs of PINBio and strengthen the programs.</p>	<p>Little progress.</p>
	<p>Program 6: Develop conservation programmes that integrate conservation activities and protected area management with regional land use planning.</p>	<p>Demonstration project for EBM currently under development with UNEP for Kimbe Bay, West New Britain.</p>
	<p>Program 6: Develop conservation programmes that take an integrated coastal zone management (ICZM) plan for the entire coast of PNG.</p>	<p>Demonstration project for EBM currently under development with UNEP for Kimbe Bay, West New Britain. Some work by NGOs.</p>
	<p>Program 7: Develop mechanisms to incorporate biodiversity values into national accounting and decision making at different levels of government (i.e. to ‘green’ the system).</p>	<p>To be conducted through the ESEG policy development.</p>
	<p>Program 7: Strengthen inter-sectoral and National and Provincial coordination in biodiversity conservation and management</p>	<p>Little progress.</p>
	<p>Program 8: Exploit the opportunity to link biodiversity themes with community assistance programmes, including primary health care programmes, primary education programmes and agricultural and forestry extension programmes.</p>	<p>Little progress.</p>
<p>Program 8: Encourage public-private partnerships in the above activities, including partnerships between educational and environmental authorities, between the government, NGOs and churches, with international collaboration where appropriate.</p>	<p>DEC has produced a Draft NGO policy.</p>	

**Table 7: Article 7 – Identification and Monitoring**

Section	Associated NBSAP Activity	Status
(a) Identify components of biodiversity important for its conservation and sustainable use.	Program 5: Develop sub-projects for the prioritized national needs of biodiversity research.	Needs need to be identified and prioritized.
(b) Monitor, through sampling and other techniques, the components of biodiversity paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use.	Program 6: Design and utilize methodologies and indicators for monitoring and evaluating impacts.	UNDP is supporting DEC to develop suitable indicators for monitoring MDG 7 goals.
(c) Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biodiversity, and monitor their effects through sampling and other techniques.	Program 4: Carry out a comprehensive review of programmes and policies, to identify 'perverse' incentives and suggest measures to ameliorate their impacts.	No progress.
	Program 6: Design and utilize methodologies and indicators for monitoring and evaluating impacts.	UNDP is supporting DEC to develop suitable indicators for monitoring MDG 7 goals.
	Program 7: Carry out a comprehensive review of programmes and policies, to identify 'perverse' incentives and suggest measures to ameliorate their impacts.	No progress.
(d) Maintain and organize, by any mechanism data, derived from identification and monitoring activities.	Program 4: Collate, storage and management of baseline data relating to genetic resources and on current practices of access to such resources for academic and commercial purposes.	NAQIA has developed a Database System for Plant Genetic Resources Data Documentation. ARI has produced a Plant Genetic Resources Strategy for PNG. DAL has produced a draft Papua New Guinea National Plant Genetic Resources Policy.
	Program 5: Develop a meta-database of biodiversity information sources (internal and external).	NGOs and EIAs from resource extraction projects have species lists from biodiversity surveys. CI has prepared a list of IUCN red-listed species facing immediate endangerment, by species and by province. Bishop Museum conducted assessment on biodiversity and climate change impacts.
	Program 5: Develop standardized formats and establish guidelines on the responsibilities of storing, access, sharing and use of biodiversity information among local institutions involved in biodiversity issues.	Some work by PINBio and NGOs.
	Program 5: Establish a computer network between institutions involved in biodiversity issues.	Some work by PINBio and NGOs.
	Program 6: Document all conservation activities currently being pursued.	No progress.
	Program 8: Develop affordable, popular, accessible, and comprehensive field guides to the birds, animals, and flora of PNG.	Some work by NGOs in collaboration with DEC, NFA and FRI.

**Table 8: Article 8 – In-situ Conservation**

Section	Associated NBSAP Activity	Status
(a) Establish a system of protected areas or areas where special measures need to be taken to conserve biodiversity.	Programmes 1 and 6: Develop a national protected areas policy.	To be conducted through the ESEG policy development. PAs currently captured in various legislation under DEC's mandate, requires a legislative review to make PA establishment easier and in line with other initiatives such as REDD+, the ESEG policy, CCDP, MTDS and NSP. New Conservation Needs Analysis under the UNCBD's PoWPA progressed with recent support from TNC and the Bishop Museum. RAPPAM draft completed by WWF in 2006 with recommendations originally targeted to be implemented by 2010, this needs to be done after review of alignment with the ESEG policy, MTDS and NSP. RAPPAM still needs to be launched by WWF and endorsed by DEC.
	Program 6: Increase the number of protected areas to ten percent by 2010.	Some progress by NGOs.
	Program 6: Develop a cohesive national network involving agencies engaged in conservation.	Little progress.
	Program 6: Establish marine protected areas.	Some progress by NGOs and NFA. CTI and CTSP to progress this.
(b) Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biodiversity.	Programmes 1 and 6: Review and implement the Watersheds Policy.	International Water Resource Management Program to pilot 'Rehabilitation, management and monitoring of Laloki River system for economical, social and environmental benefits' project in Central Province. UNDP and DEC to develop a 'Community-based forest and coastal conservation and resource management project' funded by GEF, targeting Kokoda, Central Province, Kimbe Bay, West New Britain. CI and CSIRO developed a watersheds map of New Guinea from georectified 90m DEM in 2008.
	Programmes 1 and 6: Develop marine protected areas policy.	Previous legislative reviews on MPAs conducted by CI in 2001 and 2006. Some LLG laws established in West New Britain and pending in New Ireland and Milne Bay Provinces, with assistance from NGOs. CTI and CTSP to progress this.
(c) Regulate or manage biological resources important for the conservation of biodiversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use.	Program 6: Develop conservation programmes that integrate conservation activities and protected area management with regional land use planning.	Demonstration project for EBM currently under development with UNEP for Kimbe Bay, West New Britain.
	Program 6: Implement fisheries and maritime laws.	NFA has several species management plans in place. NMSA has been established for the maritime sector.
(d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings.	Program 6: Protect native species and habitats.	Some progress by NGOs.
(e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas.	Program 6: Develop conservation programmes that take an ICZM for the entire coast of PNG.	Demonstration project for EBM currently under development with UNEP for Kimbe Bay, West New Britain. Some work by NGOs.
(f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, <i>inter alia</i> , through the development and implementation of plans or other management strategies.	Program 6: Rehabilitate and encourage better management of existing protected areas.	Some progress by NGOs and GEF Small Grants Program.

<p>(g) Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biodiversity, taking also into account the risks to human health.</p>	<p>Program 1: Develop regulations to control the introduction and use of LMOs and GMOs and alien species.</p>	<p>National Biosafety Framework completed in 2005, has been endorsed by the Minister of Environment and Conservation, but has not been endorsed by the NEC, needs review. National Biosafety Framework needs review. Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval; Draft Biosafety and Biotechnology Bill needs review. DEC has been designated as Focal Point and Competent National Authority for the CBP. NAQIA and NARI also mandated to mitigate threats from invasive species. No Invasive Species Policy developed yet for PNG.</p>
<p>(h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.</p>	<p>Program 1: Develop regulations to control the introduction and use of LMOs and GMOs and alien species.</p>	<p>National Biosafety Framework completed in 2005, has been endorsed by the Minister of Environment and Conservation, but has not been endorsed by the NEC, needs review. National Biosafety Framework needs review. Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. DEC has been designated as Focal Point and Competent National Authority for the CBP. NAQIA and NARI also mandated to mitigate threats from invasive species. No Invasive Species Policy developed yet for PNG.</p>
	<p>Program 4: Development of rules for the control of internal movements of alien and/or invasive species.</p>	<p>Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review. NAQIA has some guidelines in place for movement of biological species, particularly invasive species.</p>
<p>(i) Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biodiversity and the sustainable use of its components.</p>	<p>Program 6: Support community-based enterprise development.</p>	<p>Some progress by NGOs.</p>
<p>(j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biodiversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.</p>	<p>Program 6: Empower local communities and promote the full and active participation of resource owners in biodiversity conservation programs.</p>	<p>Some participation of local communities, but only piecemeal, and usually as part of NGO programmes.</p>

(k) Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations.	Program 6: Protect native species and habitats.	Flora and Fauna Protection and Control enacted. Some work by NGOs.
(m) Cooperate in providing financial and other support for in-situ conservation outlined.	Program 2: Develop the following initiatives (by the Fund Raising Specialist): mobilisation of financial resources from the regional and international donor community, public and/or private mobilisation of financial resources from national sources; community mobilisation of financial resources from the sustainable use for biodiversity and other new and innovative funding mechanisms (including support for the PNG Mama Graun Conservation Trust Fund); and mobilise technical assistance from regional and international sources	DEC has produced a Draft Resource Mobilisation Policy. Some monies already available through GEF, and CTI, as well as MEA obligations. Investigation of innovative financing mechanisms currently being undertaken by DEC (e.g. REDD+ and PES). Mama Graun Trust Fund active since 2007 and currently supporting 12 WMAs; Some recent support from SRPEP, and the Roundtable. Some activities from international NGOs also.
	Program 7: Promote sustainable financing of protected areas	Some progress by NGOs To be conducted through the ESEG policy development

**Table 9: Article 9 – Ex-situ Conservation**

Section	Associated NBSAP Activity	Status
(a) Adopt measures for the <i>ex-situ</i> conservation of components of biodiversity, preferably in the country of origin of such components.	Nil.	NARI, FRI, and NFS conducting trials on domestication of indigenous tree species, to enable them to be cloned and grown in woodlots or plantations. NARI has specimen collections for edible species.
(b) Establish and maintain facilities for <i>ex-situ</i> conservation of and research on plants, animals and micro-organisms, preferably in the country of origin of genetic resources.	Nil.	NARI, FRI, and NFS conducting trials on domestication of indigenous tree species, to enable them to be cloned and grown in woodlots or plantations. NARI has specimen collections for edible species.
(c) Adopt measures for the recovery and rehabilitation of threatened species and for their reintroduction into their natural habitats under appropriate conditions.	Program 6: Protect native species and habitats.	Some progress by NGOs.
(d) Regulate and manage collection of biological resources from natural habitats for <i>ex situ</i> conservation purposes so as not to threaten ecosystems and <i>in-situ</i> populations of species.	Program 6: Initiate measures to ensure that the collection of genetic resources from the wild does not endanger the survival of remaining wild populations.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review.
(e) Cooperate in providing financial and other support for <i>ex-situ</i> conservation outlined and in the establishment and maintenance of <i>ex-situ</i> conservation facilities in developing countries.	Nil.	Nil.

**Table 10: Article 10 – Sustainable Use of Components of Biodiversity**

Section	Associated NBSAP Activity	Status
(a) Integrate consideration of the conservation and sustainable use of biological resources into national decision-making.	Program 1: Develop a position paper on research and development to show the intricate link between biodiversity research and national development.	Some progress by NGOs. To be conducted through the ESEG policy development.
(b) Adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biodiversity.	Program 7: Create an integrated system of incentives and disincentives at the national and local level to encourage the conservation and sustainable use of biodiversity.	To be conducted through the ESEG policy development.
	Program 8: Develop biodiversity interpretive facilities, including field centres, at selected protected areas and interpretive programmes in all botanical gardens, zoos, herbaria, gene banks, natural history museums, etc.	Some progress by NGOs.
(c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements.	Program 2: Develop the following initiatives (by the Fund Raising Specialist): mobilisation of financial resources from the regional and international donor community, public and/or private mobilisation of financial resources from national sources; community mobilisation of financial resources from the sustainable use for biodiversity and other new and innovative funding mechanisms (including support for the PNG Mama Graun Conservation Trust Fund); and mobilise technical assistance from regional and international sources.	DEC has produced a Draft Resource Mobilisation Policy/ Some monies already available through GEF, and CTI, as well as MEA obligations/ Investigation of innovative financing mechanisms currently being undertaken by DEC (e.g. REDD+ and PES)/ Mama Graun Trust Fund active since 2007 and currently supporting 12 WMAs; Some recent support from SRPEP, and the Roundtable/ Some activities from international NGOs also/
(d) Support the development and implementation of remedial action in degraded areas where biodiversity has been reduced.	Program 6: Rehabilitate and encourage better management of existing protected areas.	Rehabilitation schemes and monitoring undertaken in areas of resource extraction (e.g. logging and mining) by PNGFA and MRA respectively/
(e) Encourage cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources.	Program 2: Obtain necessary financial support for biodiversity initiatives.	Little progress/

**Table 11: Article 11 – Incentive Measures**

Section	Associated NBSAP Activity	Status
Adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biodiversity.	Program 6: Support community-based enterprise development/	Some progress by NGOs/
	Program 7: Create an integrated system of incentives and disincentives at the national and local level to encourage the conservation and sustainable use of biodiversity/	To be conducted through the ESEG policy development/
	Program 7: Promote sustainable financing of protected areas/	Some progress by NGOs. To be conducted through the ESEG policy development.

**Table 12: Article 12 – Research and Training**

Section	Associated NBSAP Activity	Status
(a) Establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biodiversity and its components and provide support for such education and training for the specific needs of developing countries.	Program 3: Support the Conservation Strengthening Project as a creative initiative to establish one university degree program in biodiversity and conservation biology particularly as it relates to community-based management of natural resources.	Some progress with existing and pending course development by Universities.
	Program 3: Create at least one vocational diploma-level course to train protected area managers.	No progress.
	Program 5: Strengthen capacities of locally based institutions in biological research and development.	Some progress by NGOs, NARI, FRI, PinBio and Universities.
(b) Promote and encourage research which contributes to the conservation and sustainable use of biodiversity.	Program 5: Establish species extinction rates.	No progress.
	Program 7: Develop, document, and adopt standardised criteria and methodologies for economic valuation of biodiversity, tailored to the requirements of individual decision-making agencies.	To be conducted through the ESEG policy development.
(c) Promote and cooperate in the use of scientific advances in biodiversity research in developing methods for conservation and sustainable use of biological resources.	Program 2: Develop demonstration projects to test selected priorities.	Need to determine what the priorities are. Demonstration project for EBM currently under development with UNEP for Kimbe Bay, West New Britain. 'Community-based forest and coastal conservation and resource management project' funded by GEF, targeting Kokoda, Central Province, Kimbe Bay, West New Britain.
	Program 6: Develop demonstration projects to test selected priorities.	Need to determine what the priorities are. Demonstration project for EBM currently under development with UNEP for Kimbe Bay, West New Britain.

**Table 13: Article 13 – Public Education and Awareness**

Section	Associated NBSAP Activity	Status of NBSAP Activity
(a) Promote and encourage understanding of the importance of, and the measures required for, the conservation of biodiversity, as well as its propagation through media, and the inclusion of these topics in educational programmes.	Program 1: Develop a strategy on biodiversity conservation and sustainable use education.	Some progress by NGOs.
	Program 3: Integrate biodiversity concerns into the training curricula of rural development and extension staff, particularly in the fields of agriculture, forestry and fisheries.	Some courses exist at Bulolo Forestry campus. Previous course on marine resource management developed by CI for Kuiuaro Fisheries College in the Milne Bay Province. Some progress with existing and pending course development by Universities.
	Program 8: Review and enhance national curricula which emphasises biodiversity's contributions to local and national welfare, emphasises biodiversity's contributions to the health of ecosystems, and tie ecological, economic, and social themes together to ensure that students of all schools receive formal instruction on the nature and value of biodiversity, and on the interrelationship between biodiversity and the environment.	Previous curricula development by CI for primary school and vocational school level. Some progress with existing and pending course development by Universities. Some education and awareness materials produced by NGOs, NFA and NAQIA.
(b) Cooperate, as appropriate, with other States and international organizations in developing educational and public awareness programmes, with respect to conservation and sustainable use of biodiversity.	Program 8: Develop a strategy on biodiversity conservation and sustainable use education.	No progress.



**Table 14: Article 14 – Impact Assessment and Minimizing Adverse Impacts**

Section	Associated NBSAP Activity	Status
<p>(a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biodiversity with a view to avoiding or minimizing such effects where appropriate, allow for public participation in such procedures.</p>	<p>Program 6: Link development activities and EIA (application of EIA for resource management).</p>	<p>EIA legislation strengthened in Environment Act. Need to fast track the EPA.</p>
	<p>Program 6: Strengthen the EIA process.</p>	<p>EIA legislation strengthened in Environment Act. Need to fast track the EPA. Recent training by SPREP and UNEP.</p>
<p>(b) Introduce appropriate arrangements to ensure that the environmental consequences of its programmes and policies that are likely to have significant adverse impacts on biodiversity are duly taken into account.</p>	<p>Program 6: Strengthen the EIA process.</p>	<p>Some progress. EIA legislation strengthened in Environment Act. Need to fast track the EPA. Recent training by SPREP and UNEP.</p>
<p>(c) Promote, on the basis of reciprocity, notification, exchange of information and consultation on activities under their jurisdiction or control which are likely to significantly affect adversely the biodiversity of other States or areas beyond the limits of national jurisdiction, by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate.</p>	<p>Program 5: Strengthen existing collaborative biodiversity research between local institutions, and local and international institutions and organizations (cross-reference to MoUs and/or MoAs).</p>	<p>Major cooperation exists between PNG and neighbouring countries in regards to fish stocks through the FFA, WCPFMC, and SPC and being parties to the Nauru Agreement, Palau Arrangement, US Treaty, Niue Treaty, and the FSM Arrangement. NAQIA has arrangements with Australia and Indonesian quarantine services. NARI has arrangements with similar institutions in the Solomon Islands and Vanuatu. Tri-nations MOU signed between PNG, Indonesia and Solomon Islands for conservation of leatherback turtles. Coral Triangle Initiative and the Coral Triangle Support Program currently under development.</p>
<p>(d) In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biodiversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, notify immediately the potentially affected States of such danger or damage, as well as initiate action to prevent or minimize such danger or damage.</p>	<p>Nil.</p>	<p>NMSA has marine pollution legislation.</p>

<p>(e) Promote national arrangements for emergency responses to activities or events, whether caused naturally or otherwise, which present a grave and imminent danger to biodiversity and encourage international cooperation to supplement such national efforts and, where appropriate and agreed by the States or regional economic integration organizations concerned, to establish joint contingency plans.</p>	<p>Nil.</p>	<p>NMSA has marine pollution legislation.</p>
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**Table 15:** Article 15 – Access to Genetic Resources

Section	Associated NBSAP Activity	Status
<p>2. Create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the Convention's objectives.</p>	<p>Program 1: Develop innovative policy and law that protect the intellectual property rights of organizations and individuals engaged in biodiversity research and development.</p>	<p>ABS Review conducted in 2006. ABS legislation needs to be finalized.</p>
<p>5. Create conditions for prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that Party.</p>	<p>Program 4: Develop simple procedures for obtaining prior informed consent of local communities regarding access to genetic resources located on their customary land.</p>	<p>ABS Review conducted in 2006. ABS legislation needs to be finalized.</p>
<p>6. Develop and carry out scientific research based on genetic resources provided by other Contracting Parties with the full participation of, and where possible in, such Contracting Parties.</p>	<p>Program 5: Strengthen existing collaborative biodiversity research between local institutions, and local and international institutions and organizations (cross-reference to MoUs and/or MoAs).</p>	<p>ABS Review conducted in 2006. ABS legislation needs to be finalized.</p>
<p>7. Take legislative, administrative or policy measures for sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources.</p>	<p>Program 4: Initiate the formulation of the Access Benefit Sharing Policy and Bill.</p>	<p>ABS Review conducted in 2006. ABS legislation needs to be finalized.</p>

**Table 16: Article 16 – Access to and Transfer of Technology**

Section	Associated NBSAP Activity	Status
1. Provide and/or facilitate access for and transfer to other Contracting Parties of technologies that are relevant to the conservation and sustainable use of biodiversity or make use of genetic resources and do not cause significant damage to the environment.	Program 5: Develop the capacity to use genetic technologies to characterise PNG biodiversity and aid monitoring of illegal trade.	NAQIA has developed a Database System for Plant Genetic Resources Data Documentation. NARI has produced a Plant Genetic Resources Strategy for PNG, DAL has produced a draft Papua New Guinea National Plant Genetic Resources Policy. Bishop Museum conducted assessment on biodiversity and climate change impacts.
3. Take legislative, administrative or policy measures for access to and transfer of technology.	Program 5: Strengthen existing collaborative biodiversity research between local institutions, and local and international institutions and organizations (cross-reference to MoUs and/or MoAs).	Some progress by NGOs and aid programmes.
4. Take legislative, administrative or policy measures for private sector facilitation for joint development and transfer of technology.	Program 5: Strengthen existing collaborative biodiversity research between local institutions, and local and international institutions and organizations (cross-reference to MoUs and/or MoAs).	Some progress by NGOs and aid programmes.

**Table 17: Article 17 – Exchange of Information**

Section	Associated NBSAP Activity	Status
1. Facilitate the exchange of information (results of technical, scientific and socio-economic research, as well as information on training and surveying programmes, specialized knowledge, indigenous and traditional knowledge), from all publicly available sources, relevant to the conservation and sustainable use of biodiversity.	Program 3: Design simple procedures for the exchange of information between stakeholders, donors etc.	Draft Communications Strategy developed by DEC.
	Program 6: Develop a cohesive national network involving agencies engaged in conservation.	Previous NCC.
	Program 6: Ensure that development personnel, land use planners, aid agencies and national, provincial and local level authorities have access to, and use biodiversity information in their work	NGOs and EIAs from resource extraction projects have species lists from biodiversity surveys. CI has prepared a list of IUCN red-listed species facing immediate endangerment, by species and by province.
	Program 8: Ensure that relevant materials are available for guidance of students, lecturers, drafters of curricula and syllabuses, as well as producers of audio-visual and non-formal education aids, based on on-going monitoring and evaluation.	Previous curricula development by CI for primary school and vocational school level. Some progress with existing and pending course development by Universities. Some education and awareness materials produced by NGOs, NFA and NAQIA.
	Program 8: Ensure that development personnel, land-use planners, aid agencies and the national and provincial planning authorities have access to information about biodiversity (this should include information about the location of biological 'hot spots' and rare and endangered species.	NGOs and EIAs from resource extraction projects have species lists from biodiversity surveys. CI has prepared a list of IUCN red-listed species facing immediate endangerment, by species and by province. Some oil palm companies supportive of RSPO guidelines.
	Program 8: Encourage the role of the media and in particular radio, through easy access to the biodiversity information clearinghouse and regular information briefs, interviews and stories.	Some progress by NGOs and aid programmes.

**Table 18: Article 18 – Technical and Scientific Cooperation**

Section	Associated NBSAP Activity	Status
<p>1. Promote international technical and scientific cooperation in the field of conservation and sustainable use of biodiversity, where necessary, through the appropriate international and national institutions.</p>	<p>Program 3: Strengthen existing partnerships that promote biodiversity conservation and sustainable use of biological resources.</p>	<p>Some coordination with other government agencies through differing committees such as the MDG 7 task Force and the CTI Steering Committee. Need to strengthen cooperation with NGOs.</p>
	<p>Program 3: Explore opportunities for ‘twinning’ arrangements with institutions in other countries (universities, botanical gardens, national park authorities, etc).</p>	<p>Some staff have been on extended training courses.</p>
	<p>Program 5: Strengthen existing collaborative biodiversity research between local institutions, and local and international institutions and organizations (cross-reference to MoUs and/or MoAs).</p>	<p>Little progress.</p>
	<p>Program 5: Train personnel in the field of plant and animal molecular genetics (especially DNA bar-coding) through developing a strategic partnership with reputable international institutions.</p>	<p>Little progress.</p>
<p>2. Promote technical and scientific cooperation for human resources development and institution building with other Contracting Parties through the development and implementation of national policies.</p>	<p>Program 5: Strengthen existing collaborative biodiversity research between local institutions, and local and international institutions and organizations (cross-reference to MoUs and/or MoAs).</p>	<p>Little progress.</p>
<p>4. Encourage and develop methods of cooperation for training of personnel and exchange of experts, and the development and use of technologies, including indigenous and traditional technologies, in pursuance of the Convention’s objectives.</p>	<p>Program 2: Develop human capacity to ensure the short- and long-term financing and sustainability of NBSAP.</p>	<p>Expressed in DEC corporate plan and Strategic Directions policy.</p>
	<p>Program 3: Strengthening human capacity in biodiversity conservation and management.</p>	<p>DEC reform process to address some of these issues. DEC has initiated a graduate intern program under the Public Service Support program, Some work by NGOs. DEC currently enhancing its GIS and database capacity through assistance from Australian government. DEC also supported by a Mutual Understanding for the management of the Kokoda Track and Brown River areas.</p>
<p>5. Promote the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of this Convention.</p>	<p>Program 5: Strengthen existing collaborative biodiversity research between local institutions, and local and international institutions and organizations (cross-reference to MoUs and/or MoAs).</p>	<p>Little progress.</p>

**Table 19: Article 19 – Handling of Biotechnology and Distribution of its Benefits**

Section	Associated NBSAP Activity	Status
1. Take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities.	Program 4: Ensure that the draft Biosafety and Biotechnology Bill and the National Biosafety Framework are approved by the Parliament.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review.
	Program 4: Initiate the formulation of the ABS Policy and Bill.	ABS Review conducted in 2006. ABS legislation needs to be finalized.
2. Promote and advance priority access on a fair and equitable basis for the results and benefits arising from biotechnologies based upon genetic resources.	Program 4: Ensure that the draft Biosafety and Biotechnology Bill and the National Biosafety Framework are approved by the Parliament.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review.
	Program 4: Initiate the formulation of the ABS Policy and Bill.	ABS Review conducted in 2006. ABS legislation needs to be finalized.

**Table 20: Article 20 – Financial Resources**

Section	Associated NBSAP Activity	Status
1. Provide financial support and incentives in respect of those national activities which are intended to achieve the objectives of this Convention, in accordance with its national plans, priorities and programmes.	Program 2: Encourage local investment in biodiversity conservation as a complementing measure to foreign donor support.	Needs further refinement and analysis through the ESEG policy development process. Some NGOs reviewing some options, but still needs more work, resources and ideas.
	Program 5: Secure funding and research bodies to implement sub-projects.	Some progress by NGOs. Needs need to be identified and prioritized.
2. Seek new and additional financial resources from developed countries in accordance with policy, strategy, program priorities and eligibility criteria.	Program 2: Design and implement a spectrum of sustainable financing mechanisms for NBSAP implementation.	Investigation of innovative financing mechanisms currently being undertaken by DEC (e.g. REDD+ and PES).
	Program 2: Obtain necessary financial support for biodiversity initiatives.	Little progress.
	Program 2: Develop the following initiatives (by the Fund Raising Specialist): mobilisation of financial resources from the regional and international donor community, public and/or private mobilisation of financial resources from national sources; community mobilisation of financial resources from the sustainable use for biodiversity and other new and innovative funding mechanisms (including support for the PNG Mama Graun Conservation Trust Fund); and mobilise technical assistance from regional and international sources	DEC has produced a Draft Resource Mobilisation Policy. Some monies already available through GEF, and CTI, as well as MEA obligations. Investigation of innovative financing mechanisms currently being undertaken by DEC (e.g. REDD+ and PES). Mama Graun Trust Fund active since 2007 and currently supporting 12 WMAs; Some recent support from SRPEP, and the Roundtable. Some activities from international NGOs also.

**Table 21: Article 21 – Financial Mechanism**

Section	Associated NBSAP Activity	Status
4. Strengthen existing financial institutions to provide financial resources for the conservation and sustainable use of biodiversity.	Program 2: Develop the following initiatives (by the Fund Raising Specialist): mobilisation of financial resources from the regional and international donor community, public and/or private mobilisation of financial resources from national sources; community mobilisation of financial resources from the sustainable use for biodiversity and other new and innovative funding mechanisms (including support for the PNG Mama Graun Conservation Trust Fund); and mobilise technical assistance from regional and international sources.	DEC has produced a Draft Resource Mobilisation Policy. Some monies already available through GEF, and CTI, as well as MEA obligations. Investigation of innovative financing mechanisms currently being undertaken by DEC (e.g. REDD+ and PES). Mama Graun Trust Fund active since 2007 and currently supporting 12 WMAs; Some recent support from SRPEP, and the Roundtable. Some activities from international NGOs also.
	Program 2: Support the development and activities of the PNG Mama Graun Trust Fund as a local initiative funding source	TNC wanting to divest its interest in the Mama Graun Trust Fund. Mama Graun Trust Fund active since 2007 and currently supporting 12 WMAs.

**Table 22: Article 26 – Reports**

UNCBD Article	Associated NBSAP Activity	Status
Reports measures taken for the implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention.	Program 9: Design and utilise methodologies and indicators for monitoring and evaluating the effectiveness and impacts of the Policy, Legislation and Administration; and ABS programmes in NBSAP implementation.	UNDP is supporting DEC to develop suitable national indicators for monitoring the progress to achieve MDG 7 goals. No National Communications or other reports have been sent to the Secretariat of the UNCBD, though DEC plans to submit its 4 <sup>th</sup> National Communication report.

## Discussion

While the NBSAP does align with most UNCBD articles, it is lacking in support of:

- ARTICLE 9: Ex-situ Conservation (which is of low priority to DEC due to funding issues), and
- ARTICLE 14: Impact Assessment and Minimizing (this is an area for DEC and DEC has been tasked by the government to develop an EPA to improve and to address this article).

The NBSAP also has a wider range of activities that do not easily fit into UNCBD articles (Table 23).

**Table 23:** NBSAP activities outside the UNCBD articles

<b>NBSAP Program Objectives and Activities</b>	<b>Progress against Objectives and Activities</b>
<b><i>Program 2: Financial and Technical Resource</i></b>	
Reduce expenditures by reducing duplication of effort, streamlining activities, and strategic actions to ensure maximum advantage from minimum investment by the Biodiversity Projects Coordinator.	Some coordination with other government agencies through differing committees such as the MDG 7 task Force and the CTI Steering committee.
Recruit a Fund Raising Specialist at DEC, who will identify and obtain financial and technical support for projects under NBSAP.	No progress.
Coordinate the management of projects by the Biodiversity Project Coordinator, once funds have been accessed by the Fund Raising Specialist.	No progress.
<b><i>Program 3: Human Resources and Institutional Capacity Building</i></b>	
Enhance the administration, planning and mobilizing of funding and technical resources for the implementation of the NBSAP.	DEC has produced a Draft Resource Mobilisation Policy. DEC reform process to address some of these issues.
Coordinate the required policy, legal, scientific and economics work for the implementation of the NBSAP.	Little progress.
Enhance capacity as implementer, coordinator, delegator, mobiliser and motivator of stakeholders (i.e. helping them to help implement the NBSAP).	DEC has produced a Draft Resource Mobilisation Policy. DEC reform process to address some of these issues.
Identify new partnerships to encourage biodiversity conservation and sustainable use of biodiversity.	Need to strengthen cooperation from the private sector.
Devise programs that promote greater collaboration.	Some coordination with other government agencies through differing committees such as the MDG 7 task Force and the CTI Steering Committee. Need to strengthen cooperation with NGOs. DEC has produced a Draft NGO policy.
Develop stronger partnerships with provincial and local-level governments.	Needs review process on devolution of roles and responsibilities. Some consultative processed through the CTI.
Develop programs to build stronger partnerships with local communities.	Some progress by NGOs.
Review and if needed create necessary positions, recruitment of staff to fill them and orientation of staff once in place consolidate the biodiversity work program.	DEC reform process to address some of these issues.
Assess current capacity and the biodiversity-related training needs of natural resource managers, conservation professionals and other concerned staff, and the extent to which these are currently being fulfilled.	DEC reform process to address some of these issues. Need to broaden this to other government agencies as well.
Design and implement in-service training courses to address immediate gaps and priority requirements.	DEC reform process to address some of these issues. Need to broaden this to other government agencies as well.
Enhance existing training programmes in natural resource management, through the provision of funding, staff, and equipment.	Some progress by NGOs, and Universities.
Promote, through grants and other means, post-graduate specialization in biodiversity-related fields, (e.g. taxonomy)	Some scholarships available through NGOs, resource extraction companies and aid agencies.

Strengthen the capabilities of NGOs and community institutions to play an effective role in the conservation and management of biodiversity; in particular, initiate training programmes with 'umbrella' NGOs which have large networks of community-based organizations.	No 'umbrella' NGOs, some NGOs have programmes in more than one province. EcoForestry Forum is a network of Local NGOs.
Formalize existing partnerships through Memorandum of Understanding or Memorandum of Agreement or other formal arrangements.	Some MoUs and/or MoAs signed by NGOs and government agencies, particularly for the CTI.
Enable greater involvement of DEC staff in collaborative programs that promote biodiversity conservation to build their capacity.	DEC has produced a Draft NGO policy.
Strengthen partnerships that lead to better capacity building of provincial and local-level government officials.	Some progress by NGOs and/or aid programmes. New Conservation Needs Analysis under the UNCBD's PoWPA progressed with recent support from TNC and the Bishop Museum.
Strengthen partnerships that lead to better capacity building of local communities.	Some progress by NGOs and/or aid programmes.
<b>Program 4: Benefit Sharing</b>	
Develop scoping paper for process for rules and guidelines for control of internal movements of biological species.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review. NAQIA has some guidelines in place for movement of biological species, particularly invasive species.
<b>Program 5: Research and Information on Biodiversity</b>	
Define and establish a national clearinghouse mechanism as a distribution hub.	Some progress by PinBio and NGOs. No national clearinghouse mechanism established yet.
Procure and install the physical infrastructure for the network and to train personnel for operating it within the stipulated guidelines.	Some progress by PinBio and NGOs. DEC currently enhancing its GIS and database capacity.
Appoint a national centre (or several centres) to coordinate biodiversity identification, survey and monitoring activities.	Some progress by PinBio and NGOs. DEC currently enhancing its GIS and database capacity.
Develop a position paper on research and development to show the intricate link between biodiversity research and national development.	To be conducted through the ESEG policy development.
Introduce a national policy that encourages the government to provide research grants for biodiversity research and sustainable use.	No progress.
Establish a molecular genetics laboratory.	Little progress.
<b>Program 6: Biodiversity Conservation</b>	
Strengthen programmes and their contribution to biodiversity conservation.	Little progress.
Develop a national policy on conservation including biological national collections and/or specimens.	Some collections held by research institutions and NARI.
<b>Program 8: Education and Public Awareness</b>	
Develop linkages with Universities, Teacher training colleges, teachers and NGOs to prepare appropriate curricula and support materials.	Little progress.
Train teachers to teach the course(s) on environment and biodiversity developed.	Some current modules in existing curricula. Environment a subject in all grades Elementary Prep-Grade 8 and within subjects Grade 9-Grade 12.
Integrate biodiversity concerns into the training curricula for rural development extension workers.	Previous course on marine resource management developed by CI for Kuiu Fisheries College in the Milne Bay Province.
<b>Program 9: Monitoring, Evaluation and Adaptive Management of NBSAP</b>	
Establish links for monitoring of NBSAP activities under the Policy, Legislation and Administration; and ABS programmes with Provincial and Local Level Government; and international and regional requirements, such as the MDG and the UNCBD.	UNDP is supporting DEC to develop suitable indicators for monitoring MDG 7 goals.



Overall, progress against the UNCBD articles through the NBSAP activities has generally been poor, with little or no progress against NBSAP activities.

Fuller implementation of NBSAP activities would be greatly improved by the implementation of a coordinating body to oversee activities. It is thus very important that the review of the NBSAP is completed in a timely manner.

### **3.7 Cartagena Articles and NBSAP alignment**

Tables 24 to 36 below, detail the general alignment of NBSAP activities against the articles of the CBP, and the current status of these activities.

**Table 24: Article 2 – General Provisions**

Section	Associated NBSAP Activity	Status
1. Take necessary and appropriate legal, administrative and other measures to implement its obligations under this Protocol.	Program 1: Improve effectiveness of existing legal mechanisms by creating greater awareness of conservation regulations and enhancing the capacity of law enforcement agencies (including the police, customs, airlines and NAQIA).	National Biosafety Framework completed in 2005, has been endorsed by the Minister of Environment and Conservation, but has not been endorsed by the NEC, needs review. National Biosafety Framework needs review. Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval; Draft Biosafety and Biotechnology Bill needs review. DEC has been designated as Focal Point and Competent National Authority for the CBP. NAQIA and NARI also mandated to mitigate threats from invasive species; No Invasive Species Policy developed yet for PNG.
	Program 1: Strengthen the national quarantine and biosafety processes.	NAQIA mandated to conduct quarantine activities. Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005, has been endorsed by the Minister of Environment and Conservation, but has not been endorsed by the NEC. National Biosafety Framework needs review.
	Program 4: Ensure that the draft Biosafety and Biotechnology Bill and the National Biosafety Framework are approved by the Parliament.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review.
2. Ensure that the development, handling, transport, use, transfer and release of any living modified organisms are undertaken in a manner that prevents or reduces the risks to biological diversity, taking also into account risks to human health..	Nil.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review.

**Table 25: Article 14 – Bilateral, Regional and Multilateral Agreements and Arrangements**

Section	Associated NBSAP Activity	Status
2. Inform other Parties, through the Biosafety Clearing-House, of any such bilateral, regional and multilateral agreements and arrangements that they have entered into before or after the date of entry into force of this Protocol.	Nil.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review. DEC has received no applications to develop and/or import GMOs.

**Table 26: Article 15 – Risk Assessment**

<b>Section</b>	<b>Associated NBSAP Activity</b>	<b>Status</b>
1. Carry out risk assessments in a scientifically sound manner in order to identify and evaluate the possible adverse effects of living modified organisms on the conservation and sustainable use of biological diversity, taking also into account risks to human health.	Program 1: Develop regulations to control the introduction and use of LMOs and GMOs and alien species.	National Biosafety Framework completed in 2005, has been endorsed by the Minister of Environment and Conservation, but has not been endorsed by the NEC. National Biosafety Framework needs review. Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. DEC has been designated as Focal Point and Competent National Authority for the CBP. NAQIA and NARI also mandated to mitigate threats from invasive species; No Invasive Species Policy developed yet for PNG. To date, PNG has not been a party of import, export or transit of GMOs.

**Table 27: Article 16 – Risk Management**

<b>Section</b>	<b>Associated NBSAP Activity</b>	<b>Status</b>
1. Establish and maintain appropriate mechanisms, measures and strategies to regulate, manage and control risks identified in the risk assessment provisions of this Protocol associated with the use, handling and transboundary movement of living modified organisms.	Program 1: Develop regulations to control the introduction and use of LMOs and GMOs and alien species.	National Biosafety Framework completed in 2005, has been endorsed by the Minister of Environment and Conservation, but has not been endorsed by the NEC. National Biosafety Framework needs review. Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. DEC has been designated as Focal Point and Competent National Authority for the CBP. NAQIA and NARI also mandated to mitigate threats from invasive species. No Invasive Species Policy developed yet for PNG.
3. Take appropriate measures to prevent unintentional transboundary movements of living modified organisms, including such measures as requiring a risk assessment to be carried out prior to the first release of a living modified organism.	Nil.	National Biosafety Framework completed in 2005, has been endorsed by the Minister of Environment and Conservation, but has not been endorsed by the NEC, needs review. National Biosafety Framework needs review. Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. DEC has been designated as Focal Point and Competent National Authority for the CBP. NAQIA and NARI also mandated to mitigate threats from invasive species. No Invasive Species Policy developed yet for PNG.
4. Ensure that any living modified organism, whether imported or locally developed, has undergone an appropriate period of observation that is commensurate with its life-cycle or generation time before it is put to its intended use.	Nil.	National Biosafety Framework completed in 2005, has been endorsed by the Minister of Environment and Conservation, but has not been endorsed by the NEC, needs review. National Biosafety Framework needs review. Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. DEC has been designated as Focal Point and Competent National Authority for the CBP. NAQIA and NARI also mandated to mitigate threats from invasive species. No Invasive Species Policy developed yet for PNG.

**Table 28:** Article 17 – Unintentional Transboundary Movements and Emergency Measures

Section	Associated NBSAP Activity	Status
1. Take appropriate measures to notify affected or potentially affected States, the Biosafety Clearing-House and, where appropriate, relevant international organizations, when it knows of an occurrence under its jurisdiction resulting in a release that leads, or may lead, to an unintentional transboundary movement of a living modified organism that is likely to have significant adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health in such States. The notification shall be provided as soon as the Party knows of the above situation.	Nil.	DEC to implement the Biosafety Clearing-House.
2. Make available to the Biosafety Clearing-House the relevant details setting out its point of contact for the purposes of receiving notifications under this Article.	Nil.	DEC to implement the Biosafety Clearing-House.

**Table 29:** Article 18 – Handling, Transport, Packaging and Identification

Section	Associated NBSAP Activity	Status
1. Take necessary measures to require that living modified organisms that are subject to intentional transboundary movement within the scope of this Protocol are handled, packaged and transported under conditions of safety, taking into consideration relevant international rules and standards.	Nil.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review. National Biosafety and Biotechnology Council will be established.
3. Consider the need for and modalities of developing standards with regard to identification, handling, packaging and transport practices, in consultation with other relevant international bodies.	Program 4: Prepare an existing legal and institutional profile relating to the import, export, and use of genetic resources and traditional knowledge.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review.

**Table 30: Article 19 – Competent National Authorities and National Focal Points**

Section	Associated NBSAP Activity	Status
1. Designate one national focal point to be responsible on its behalf for liaison with the Secretariat. Each Party shall also designate one or more competent national authorities, which shall be responsible for performing the administrative functions required by this Protocol and which shall be authorized to act on its behalf with respect to those functions. A Party may designate a single entity to fulfill the functions of both focal point and competent national authority.	Nil.	DEC has been designated as national focal point, and competent national authority. DEC to implement the Biosafety Clearing-House.

**Table 31: Article 20 – Information Sharing and the Biosafety Clearing-house**

Section	Associated NBSAP Activity	Status
3. Make available to the Biosafety Clearing-House any information relating to (a) Any existing laws, regulations and guidelines for implementation of the Protocol, as well as information required by the Parties for the advance informed agreement procedure; (b) Any bilateral, regional and multilateral agreements and arrangements; (c) Any summaries of its risk assessments or environmental reviews of living modified organisms generated by its regulatory process, (d) Any decisions regarding the importation or release of living modified organisms; and (e) Any reports submitted on implementation of the advance informed agreement procedure.	Nil.	DEC to implement the Biosafety Clearing-House.

**Table 32: Article 21 – Confidential Information**

Section	Associated NBSAP Activity	Status
1. Identify information submitted under the procedures of this Protocol or required by the Party of import as part of the advance informed agreement procedure of the Protocol that is to be treated as confidential.	Nil.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review.

**Table 33: Article 22 – Capacity-Building**

Section	Associated NBSAP Activity	Status
1. Cooperate in the development and/or strengthening of human resources and institutional capacities in biosafety, including biotechnology to the extent that it is required for biosafety, for the purpose of the effective implementation of this Protocol.	Nil.	Little progress.

**Table 34: Article 23 – Public Awareness and Participation**

Section	Associated NBSAP Activity	Status
1. (a) Promote and facilitate public awareness, education and participation concerning the safe transfer, handling and use of living modified organisms in relation to the conservation and sustainable use of biological diversity, taking also into account risks to human health; (b) Endeavour to ensure that public awareness and education encompass access to information on living modified organisms identified in accordance with this Protocol that may be imported.	Program 4: Promote public awareness on biosafety issues and access to genetic resources.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review. NAQIA has done some awareness on genetic resources.
2. Consult the public in the decision-making process regarding living modified organisms and make the results of such decisions available to the public, while respecting confidential information in accordance with Article 21.	Nil.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review.
3. Inform the public about the means of public access to the Biosafety Clearing-House.	Nil.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review.

**Table 35: Article 25 – Illegal Transboundary Movements**

<b>Section</b>	<b>Associated NBSAP Activity</b>	<b>Status</b>
1. Adopt appropriate domestic measures aimed at preventing and, if appropriate, penalizing transboundary movements of living modified organisms carried out in contravention of its domestic measures to implement this Protocol.	Nil.	Draft Biosafety and Biotechnology Bill completed in 2005, and endorsed by the National Executive Council in 2008, but still requires Cabinet approval. Draft Biosafety and Biotechnology Bill needs review. National Biosafety Framework completed in 2005. National Biosafety Framework needs review.
3. Make available to the Biosafety Clearing-House information concerning cases of illegal transboundary movements pertaining to it.	Nil.	DEC to implement the Biosafety Clearing-House.

**Table 36: Article 33 – Monitoring and Reporting**

<b>Section</b>	<b>Associated NBSAP Activity</b>	<b>Status</b>
Monitor the implementation of its obligations under this Protocol, and report on measures that it has taken to implement the Protocol.	Nil.	1 <sup>st</sup> NC completed by DEC in 2008.

### ***Discussion***

At present, fuller implementation of the CBP is severely hampered by the fact that the Biosafety and Biotechnology Policy and Bill, completed in 2005, is still in draft form and though it has been endorsed by the Environment Minister, it still has not yet been endorsed by the NEC.

The draft Biosafety and Biotechnology Bill contains most of the legal, administrative provisions as well as relevant measures to implement the CBP. These include regulations which relate to:

- information required for GMO licenses,
- risk assessment and risk management,
- establishment of the National Biosafety Biotechnology Council, and
- establishment of the Biosafety Clearing House.

It would be pertinent for DEC to liaise with other key stakeholders, such as NAQIO, Department of Health (DoH), UPNG, PINBio, etc., to determine institutional arrangements and any conflicts with quarantine legislations, which also relate to GMO importation, introduction, etc.

As the CBP is more specific to genetic resources, it is less of a focus for NPSAP activities.

### **3.8 Main gaps and capacity need in implementing the UNCBD in PNG**

#### ***Absence of an institutional arrangement to coordinate implementation of the NBSAP***

Fuller implementation of NBSAP activities would be greatly improved by the implementation of a coordinating body to oversee activities.

#### ***Absence of a national biodiversity conservation policy***

When endorsed the policy should be able to articulate PNG's priority conservation goals and strategies and be used to guide the implementation of the NBSAP and role of stakeholders. Funding is needed to engage a national institution or individual/s to support the government in undertaking this work.

#### ***Lack of an implementation and resource mobilization strategy for the NBSAP***

The NBSAP needs an implementation strategy and a supporting resource mobilization strategy. Roles and responsibilities of stakeholders need to be clarified and measurable targets and indicators established. NGOs involved in conservation in PNG should also align their work program with the NBSAP and provide progress reports to the government on implementation. The resource mobilization strategy could have a similar approach and outline as that to be used for the UNCCD's NAP which contains strategies to mobilize bilateral and national funding and establish innovative funding mechanisms.

#### ***Absence of a Biosecurity Act and the Biosafety Policy Framework***

This is a major gap in PNG's commitment to the CBP. Its eventual gazettal by the government will enable more target capacity building amongst stakeholders to enable its enforcement and implementation.

#### ***Absence of a legal regime to protect intellectual property rights of organizations and individuals involved in biodiversity research and development***

This legal regime is urgently needed and should also include the promotion and use of prior informed consent in the granting and access to PNG's rich biodiversity and traditional knowledge of biodiversity.



***Very few Management Plans for Protected Areas***

PNG has over 50 protected areas covering about 3% of total land area, but very few of them have management plans. As management of protected areas is primarily the responsibility of government there is a need for increased allocation of financial resources to support government agencies and communities to strengthen their capacity to establish and implement these management plans.

***Limited resources within DEC to support implementation of the NBSAP***

DEC is required to play an important role in coordinating and monitoring the implementation of the NBSAP. This importance is not matched by the level of dedicated funding resources and staffing. With its current level of resources it would be very difficult for DEC to effectively carry out its role.

***Absence of a sustainable financing mechanism to support conservation work in PNG***

This is recognized in the NBSAP as an important area for capacity building. Conservation work in PNG has been supported through projects with short time frames. Sustaining monitoring and enforcement activities after project closure continues to be a problem.

***Lack of a policy to guide national for strategies on invasive species***

While the National Agriculture Quarantine and Inspection Authority (NAQIA) and the National Agriculture Research Institute (NARI) both have roles and mandates in addressing invasive species in PNG, a national policy on invasive species is yet to be in place. One of the biggest capacity constraints for an effective border control system in PNG is the limited financial and human resources considering its vast coastline, scattered islands and more than 800 km border with the West Papua Province of the Republic of Indonesia.

## 4. THE UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION

### 4.1 Land degradation in PNG

PNG's forest is the most extensive and species rich in the world and is the third largest in size after the Amazon and the Congo. Estimates conducted in 2002 of PNG's land cover estimated that 40 % of land was covered in lowland rainforest, 14 % representing grassland, woodland and cleared plantations, 19 % being lower montane rainforest, 7 % swamp forest, 2% dry evergreen forest, 2 % upper montane rainforest, with mangroves making up the final 1 %.

The PNG river systems are fed by massive catchment areas. For example, one of the nation's biggest rivers, the Sepik, has a catchment of 77,700 km<sup>2</sup>, is navigable for up to 500 km and discharges around 4,500 to 11,000 m<sup>3</sup> of water per second. PNG also has one of the most diverse mangrove systems in the world covering vast stretches of land, supporting countless other species including people.

While there are abundant natural riches below and on the surface of the land, there are concerns for the ability of land resources to support people and biodiversity into the future. Soil surveys and assessments reveal that only 1 % of land in PNG has high fertility status, 58% is subject to erosion, 30 % is considered marginal land suitable for agriculture, and 18 % is regularly inundated.

A recent assessment of the state of forests in PNG which measured forest change from 1972 to 2002 has shown that by 2002, 2.9 million ha of forest had been degraded due to logging and this was happening at a rate of 1.4 % of total forest area degraded per annum. It was estimated that 48.2 % of forest cover had already been degraded with extrapolations that 83 % of all accessible forests would be cleared by 2021. Other drivers of forest change identified for this period include subsistence agriculture at 45.6 %, fires at 4.4 %, plantation establishment at 1 %, and mining at 0.6 %.

Across much of the lowland and islands regions, logged forests have in many locations been reduced to a state that is highly vulnerable to further degradation and eventual conversion. This is a serious threat when the continuing high population growth rate is taken into consideration. Traditional agricultural production systems (i.e. swidden or slash and burn) are expected to increase in the near future. Furthermore, forest will continue to be cleared for commercial farming, infrastructure, and other developments. This will almost certainly mean that land clearing will be extended to areas that are more vulnerable to erosion of the topsoil and the rapid depletion of soil nutrients.

It is estimated that subsistence agriculture clears up to 200,000 ha of forested land annually in PNG, with approximately 6 million hectares are used in rotational gardening cycles. Increasing demands on land will for subsistence agriculture and large plantation agriculture, particularly for oil palm, all place significant pressure on productivity. Already, shorter fallows periods are becoming increasingly necessary, resulting in progressive reductions in soil fertility, reducing crop harvests in the medium to long term, and exacerbating the demand for further new (primary forested) land clearances.

The principal environmental threats posed by land clearance are:

- degradation of soil quality;
- direct loss of habitat in the area(s) cleared of vegetation;
- disturbance of the downstream hydrological regime;
- erosion and loss of soil from cleared and exposed ground;

- fragmentation of the wider habitat range as a result of the loss of habitat from the cleared areas, which become barriers to movement and distribution;
- human intrusion and disturbance of previously inaccessible native habitats;
- nutrient enrichment (eutrophication) of downstream freshwaters;
- silting of downstream watercourses, waterbodies and wetlands;
- silting, organic enrichment and eutrophication of coastal environments such as mangroves, lagoons, reef flats and reefs, and near-shore waters; and
- the introduction of invasive species to previously undisturbed native habitats.

There are no active programs targeting forest regeneration and about 23 % of logged forests have already been converted to non-forest cover and plantation agriculture. Estimates indicate that the current area of land under agriculture leases (i.e. primary forest land leased for felling and development of agriculture), make up a significant share of the accessible forest areas and if felled will result in a much bigger area of land being degraded.

Environmental impacts occur at all stages of the mining cycle depending on the mining methods used and degree of activity, commencing with exploration, construction, operation, closure and post-closure, when residual impacts can continue to occur long after mine closure and abandonment. Some of the worst examples of disastrous environmental and social impacts caused by mining can be found in PNG. This applies in particular to the Bougainville Panguna Copper Mine and the Ok Tedi Mine. The oil and gas sector appear to have a lower environmental impact than mining.

#### **4.2 The UNCCD**

PNG ratified the UNCCD in December 2000 and presented its most recent 3<sup>rd</sup>NC in 2006. The Initially the responsibility to coordinate and oversee the UNCCD implementation in PNG was assigned to the Green House Gas Unit within DEC. This task is now assigned to the Water Resources Section of DEC.

A UNCCD Steering Committee and Technical Committee were established in 2004, however these bodies have ceased to function and coordination has been lacking up until the present time.

PNG has not participated actively in the past UNCCD CoPs and has not made formal submissions to the past meetings of the Committee to Review the implementation of the Committee. In the area of resource mobilization, the SLM project is the first GEF-funded medium sized project that PNG is benefiting from since GEF became the financial mechanism for the UNCCD. Despite the relatively low level of engagement in the UNCCD processes PNG has been addressing a wide range of land degradation issues and challenges many of which are highlighted in this NCSA report.

The UNCCD defines 'land degradation' as a reduction or loss, in the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns, such as:

- soil erosion caused by wind and/or water;
- deterioration of the physical, chemical and biological or economic properties of soil; and
- long-term loss of natural vegetation;

'Drought' is defined by the UNCCD as the naturally occurring phenomenon that exists when precipitation has been significantly below normal recorded levels, causing serious hydrological imbalances that adversely affect land resource production systems. Mitigating the effects of

drought means activities related to the prediction of drought and intended to reduce the vulnerability of society and natural systems to drought.

### 4.3 The UNCCD's 10-Year Strategic Plan

As a Party to the UNCCD, and in the absence of a NAP, the main guiding framework currently at the disposal of the PNG government to assist with implementation of the UNCCD is the UNCCD's 10-Year Strategic Plan. In a move to strengthen implementation of the UNCCD, the CoP 9 held in 2008 requested Parties to operationalise the 10-Year Strategic Plan in accordance with their national priorities and urged affected developing country Parties to align their NAPs and other relevant implementation activities with the 10-Year Strategic Plan. Parties were also requested to recommend indicators to be used for the Operational Objectives of the Strategy.

A year later in Buenos Aires the UNCCD convened another CoP together with the first conference on Science and Technology. During this CoP, a decision was taken to provisionally accept a set of eleven indicators as the minimum required for reporting by affected Parties. These include two mandatory and nine optional indicators. The mandatory indicators include:

- proportion of population in affected areas living above the poverty line, and
- land cover status.

CoP10 also urged Parties to use the agreed set of indicators as an important element in their reporting tools and to use pragmatic baselines and targets; and encouraged Parties, where capacity permits, to use additional indicators that could also contribute to measuring the impacts of activities intended to achieve Strategic Objectives of the 10-Year Strategic Plan (Table 37). Expected impacts are the long-term effects intended by the strategic objectives.

**Table 37:** UNCCD's strategic objectives, impacts and indicators

Strategic Objective	Expected Impacts	Indicator
1: To improve the living conditions of affected populations.	1.1. People living in areas affected by desertification/land degradation and drought to have an improved and more diversified livelihood base and to benefit from income generated from sustainable land management. 1.2. Affected populations' socio-economic and environmental vulnerability to climate change, climate variability and drought is reduced.	S-12: Decrease in numbers of people negatively impacted by the processes of desertification/land degradation and drought. S-2: Increase in the proportion of households living above the poverty line in affected areas. S-3: Reduction in the proportion of the population below the minimum level of dietary energy consumption in affected areas.
2: To improve the condition of affected ecosystems.	2.1. Land productivity and other ecosystem goods and services in affected areas are enhanced in a sustainable manner contributing to improved livelihoods. 2.2. The vulnerability of affected ecosystems to climate change, climate variability and drought is reduced.	S-4: Reduction in the total area affected by desertification/land degradation and drought. S-5: Increase in net primary productivity in affected areas.
3: To generate global benefits through effective implementation of the UNCCD.	3.1. Sustainable land management and combating desertification/land degradation contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change.	S-6: Increase in carbon stocks (soil and plant biomass) in affected areas. S-7: Areas of forest, agricultural and aquaculture ecosystems under sustainable management.
4: To mobilize resources to support implementation of the Convention through building effective partnerships between national and international actors.	4.1. Increased financial, technical and technological resources are made available to affected developing country Parties, and where appropriate Central and Eastern European countries, to implement the Convention. 4.2. Enabling policy environments are improved for UNCCD implementation at all levels.	S-8: Increase in the level and diversity of available funding for combating desertification/land degradation and mitigating the effects of drought. S-9: Development policies and measures address desertification/land degradation and mitigation of the effects of drought.

Because PNG has not produced its NAP yet, the operational (short to medium-term) objectives and outcomes of the 10-Year Strategic Plan was used during the NCSA here to take stock of PNG's progress with implementation of the convention and identify main gaps and capacity needs.

#### **4.4 The UNCCD 10-Year Strategic Plan and its Status in PNG**

Tables 38 to 36 below, detail the general status of activities against the outcomes of the UNCCD's 10-Year Strategic Plan.

**Table 38: Article 5 – General Provisions**

10-year Strategic Plan	Status	Main gaps	Capacity Needs	Capacity Actions
<p>Outcome 1.1: Desertification/land degradation and drought issues and the synergies with climate change adaptation/mitigation and biodiversity conservation are effectively communicated among key constituencies at the national and local levels.</p>	<p>DAL, PNGFA and NGOs have developed extension, technical materials and awareness programs that promote sustainable agriculture and forestry and these have also been incorporated into the training materials of university and technical and/or vocational programs.</p>	<p>Absence of a communications strategy for land degradation and drought mitigation and which also promotes the inter-linkages between land resources, biodiversity conservation and resilience to climate change.</p>	<p>Officers from DEC and stakeholder agencies need to be familiar with the linkages between land degradation, drought issues, climate change and biodiversity. Training is needed on the identification of linkages and synergies and also on the purpose of a communication strategy, its main features and how it can be developed. Funding support and expertise to enable training of nationals in development of communication strategy.</p>	<p>Engage expertise from within or outside PNG to provide training on the linkages between land degradation, drought issues, climate change and biodiversity and in the development of a communication strategy that supports the implementation of the NAP after it is developed. Mobilize resources to develop and implement the communication strategy as part of the NAP activities.</p>
<p>Outcome 2.1: Policy, institutional, financial and socio-economic drivers of desertification/land degradation and barriers to sustainable land management are assessed, and appropriate measures to remove these barriers are recommended.</p>	<p>PNG has put in place a number of policies, strategies and plans to guide the various sectors involved in land resources management e.g. agriculture, water, forestry, land ownership, mineral exploration and mining, land-use planning at the local level government, formal incorporation of traditional land owning groups for purposes of land development. Although various studies have been undertaken to assess the drivers of land degradation in PNG, the government and stakeholders are yet to formally establish priority land degradation issues/sites, designate priority sites needing urgent attention as well as research and produce information on the underlying drivers of land degradation and barriers to sustainable land management and how these can be addressed.</p>	<p>There is need for a synthesis of the range of studies and/or assessments already undertaken on land and ecosystem services being degraded due to factors such as deforestation, mining and subsistence agriculture activities in densely populated areas. This can be undertaken by a national research or training institution and is important to guide the development and implementation of the PNG NAP.</p>	<p>Funding is needed to undertake the following: engage a national institution and personnel to undertake a synthesis of past and current studies to determine the main land degradation issues and priority zones or sites in PNG, the underlying drivers of land degradation, appropriate socio-economic and biophysical information to use as a baseline and appropriate indicators to use in monitoring land degradation and restoration; Convene a national forum or workshop on land degradation in PNG where the findings of the review is presented and consultation is undertaken to confirm priority land degradation issues and sites and identify measures to address the underlying drivers of land degradation and barriers to sustainable land management including the identification of appropriate indicators for land degradation and restoration; and</p>	<p>Mobilize resources and identify suitable institution and personnel able to undertake a review and synthesis of past and current studies on the drivers of land degradation in PNG</p>

		Absence of a national water policy that incorporates measures for integrating water resources management with biodiversity conservation and adaptation to climate change.	Human resources and funding needed to hold consultations develop the policy and formalize implementation arrangements.	
		Land degradation yet to have a working definition in PNG and there is yet no mechanism to prioritize land degradation issues/sites in the country.	Expertise and financial resources needed to carry out consultations to establish a working definition of land degradation in PNG and criteria for prioritizing land degradation issues/sites.	
Outcome 2.2: Affected country Parties revise their NAPs into strategic documents supported by biophysical and socio-economic baseline information and include them in integrated investment frameworks.	PNG does not have a NAP and is in the process of developing one with funding support from the GEF and UNDP through the SLM Project.	Absence of a national strategy to implement the UNCCD.	Officers within DEC and other key implementing agencies need hands-on training in developing the NAP and aligning it with the UNCCD 10-year strategic plan. Training is also needed for developing appropriate biophysical and socio-economic baseline information and indicators to measure the implementation of the NAP.	Engage expertise to assist DEC and key stakeholders plan and develop the NAP through a practical hands-on experience involving facilitation of consultations and writing up the NAP document and aligning it with the UNCCD 10-Year Strategic Plan. Engage expertise to assist DEC and key stakeholders identify and develop appropriate baseline information and measurable targets, and adapt the UNCCD Strategic Plan indicators to the PNG context and develop appropriate mechanisms for monitoring progress of implementation.
Outcome 2.3: Affected country Parties integrate their NAPs and sustainable land management and land degradation issues into development planning and relevant sector and investment plans and policies.	The NCSA UNCCD stock-take has identified a very wide range of stakeholders across many sectors in the country that are already actively involved in implementing the various provisions of the convention and its strategic plan. Various coordinating mechanisms are also in place for the implementation of sector plans and strategies. DEC needs to establish an appropriate institutional arrangement to coordinate implementation of UNCCD in PNG and be able to facilitate and promote the integration of the NAP into national development planning and other sector plans and policies.	Absence of an institutional arrangement to coordinate implementation of the UNCCD in PNG.	DEC needs to establish clear duties and performance targets for officers assigned to coordinate and monitor MEAs, and in this case, UNCCD implementation in PNG. DEC needs to establish a network of UNCCD contact points within other partner agencies and networks within and outside the country and facilitate the identification of lead technical agencies for UNCCD implementation in PNG. Officers in DEC and partner organizations need training on their roles in the UNCCD reporting process and how to promote and facilitate the mainstreaming of the NAP into their sector programs and	Develop clear ToR and performance targets for officers identified to coordinate UNCCD work in PNG, determine and address priority capacity needs for carrying out this role. Establish a UNCCD steering committee and network and mailing list of UNCCD contact points. Training for officers in reporting on implementation of the UNCCD in PNG using the strategic plan indicators

			organizational work plans. Officers in DEC and key partner organizations need training in mainstreaming and integrating the UNCCD and NAP into national plans and policies.	
Outcome 2.5: Mutually reinforcing measures among land degradation action programs and biodiversity and climate change mitigation and adaptation are introduced or strengthened so as to enhance the impact of interventions.	Government, NGOs, private sector and training institutions in PNG have independently and sometimes collaboratively undertaken a wide range of work addressing the causes and effects of land degradation and drought. These are well documented in past reports and assessments. These same reports also highlight the limited integration of these efforts except sometimes through donor funded projects. In terms of integrated land use planning and management a recent assessment to design the PNG GEF SLM has found that despite the ability of various departments to access and use modern planning tools such as GIS, PNG does not have a 'systematic unified and coordinated' framework to address all relevant areas in an integrated manner, including sustainable development. The emergence of REDD+ as a potential mechanism for integrated land use planning and management is added reason for government to take urgent action to formalize this integrated approach.	Weak linkages between land degradation, climate change and biodiversity conservation.	Establishment of a formal coordination mechanism to promote integrated land use planning and land management and support resource owners execute integrated land use planning and management systems, needs to be put in place. An appropriate government agency needs to be identified to coordinate such an approach and provided with the necessary financial and human resources.	As lead agency for the UNCCD, DEC to initiate and facilitate consultations amongst government agencies to review existing collaborative arrangements and develop a mechanism to promote and implement an integrated approach.



**Table 39: Articles 9 and 10 – Development of a NAP to address land degradation**

10-year Strategic Plan	Status	Main gaps	Capacity Needs	Capacity Actions
Outcome 2.2: NAPs to be supported by biophysical and socio-economic baseline information and included in integrated investment frameworks.	DEC has developed a tentative list of stakeholders to be members of the UNCCD coordinating committee and drafted a terms of reference. The government has just received funding from the GEF via the UNDP to begin development of the NAP.	Absence of a NAP that is aligned to the UNCCD Strategic Plan, establishes priority Land Degradation issues, priority sites, a program of action, clear roles and responsibilities of partners, funding requirements and an accompanying resource mobilization strategy. Absence of a formal coordination mechanism for the UNCCD and addressing land degradation and drought preparedness in PNG.	Human resources and funding needed to hold consultations, develop the NAP and accompanying resource mobilization strategy. Secure funding support, plan and implement national consultations for the development of the PNG NAP. Need for better understanding amongst DEC and stakeholders on the UNCCD, role of the NAP and coordinating body.	Develop ToR and constitute a coordinating body for the UNCCD and NAP planning and implementation in PNG Conduct multi-agency awareness and training program on the UNCCD.

**Article 11: Sub-regional Action Programs**

PNG needs to develop a NAP before considering involvement in a RAP.

**Table 40: Article 12 – International cooperation**

10-year Strategic Plan	Status	Main gaps	Capacity Needs	Capacity Actions
Outcome 3.6: Science and technology networks and institutions relevant to desertification & land degradation and drought are engaged to support UNCCD implementation.	PNG scientists and technical officers continue to be actively involved in research and networking to address a range of land resource management issues and collaborate with regional and international research and scientific institutions.	Knowledge sharing and networking is actively pursued with global and regional institutions however this is not well coordinated at the national level. PNG also needs to become more actively involved in the UNCCD subsidiary bodies e.g. the Committee for the review of the implementation of the convention and the committee on science and technology.	Technical officers amongst government and NGOs need regular and timely information on the UNCCD's CoP processes in order to seek opportunities to participate. Development of a mechanism for regular sharing and updating of scientific information amongst actors at the national level.	

**Table 41: Articles 13, 20 and 21 – Funding and financial mechanisms to support the implementation of the NAP**

10-year Strategic Plan	Status	Main gaps	Capacity Needs	Capacity Actions
<p>Outcome 5.1: Affected country Parties develop integrated investment frameworks for leveraging national, bilateral and multilateral resources with a view to increasing the effectiveness and impact of interventions.</p> <p>Outcome 5.3: Parties increase their efforts to mobilize financial resources from international financial institutions, facilities and funds.</p>	<p>There have been many initiatives in PNG to mobilize resources for addressing land degradation and sustainable land management. These have been done to address high level sector goals, specific development issues or site/area specific problems. As these have been generally ad-hoc in nature it is not possible to gauge the impact of donor funding intended to assist PNG address its land degradation issues.</p> <p>PNG is developing the NAP together with an accompanying resource mobilization strategy. The UNCCD with the support of GEF and its implementing agencies is assisting Parties to develop integrated investment and resource mobilization strategies to support the implementation of the NAP and funding is available to PNG through the GEF UNDP SLM project.</p>	<p>Integrated financing strategy to be developed to support implementation of the NAP.</p>	<p>On endorsing the GEF SLM capacity building project the PNG government has recognized the need to have in place the capacity to develop a Resource Mobilization Strategy to support implementation of the NAP.</p> <p>Main stakeholders involved in developing the NAP and representatives from planning and finance departments need training in the method for developing and implementing the resource mobilization strategy.</p> <p>Donors supporting the PNG government also need to have in place a mechanism to coordinate their support for the implementation of the PNG NAP.</p>	<p>Engage resource person/s to assist government agencies and stakeholders plan and develop the resource mobilization strategy to support the implementation of the NAP.</p> <p>Identify the appropriate agency to coordinate and monitor the implementation of the resource mobilization strategy.</p>
<p>Outcome 5.3: Parties increase their efforts to mobilize financial resources from international financial institutions, facilities and funds, including the GEF, by promoting the SLM agenda within the governing bodies of these institutions.</p>	<p>Government agencies, research and training institutions, NGOs and community organizations continue to be actively involved in mobilizing financial resources to address land degradation and related issues. PNG continues to receive good levels of funding support from donors, international NGOs, and philanthropic organizations. Better understanding of respective donors requirements and project cycle can help with design and implementation of projects however most of the delays in funding and implementation has been attributed to weak accountability and reporting systems and weak performance management in executing agencies.</p>	<p>Weak project cycle management.</p>	<p>Training in donor requirements and project cycle.</p> <p>Training in Project Cycle Management including development of fundable proposals.</p> <p>Review on how best to align donor project implementation with day to day operations.</p> <p>of government agencies and partner organizations to minimize overload and ensure timely achievement of project outputs.</p>	<p>Conduct workshop aimed at determining approaches to align donor project implementation with day to day operations of government agencies and partner organizations to minimize overload and ensure timely achievement of project outputs.</p>

<p>Outcome 5.4: Innovative sources of finance and financing mechanisms are identified to combat desertification/land degradation and mitigate the effects of drought, including from the private sector, market-based mechanisms, trade, foundations and CSOs, and other financing mechanisms for climate change adaptation and mitigation, biodiversity conservation and sustainable use and for hunger and poverty reduction.</p>	<p>PNG has a long experience with a range of innovative finance and financing mechanisms to support sustainable land management. For example, agriculture commodity boards such as the Cocoa Board levy a fee that is used to support research and extension activities and farmer projects, mining companies have initiated community development programs, and micro-credit schemes operated with donor funding, south-south cooperation initiatives. Despite its multilateral nature, the EU funding mechanisms have provided PNG with substantial grant funding to strengthen the mining, agriculture and forestry sectors. A highlight of an innovative financing mechanism is the REDD+ which PNG initiated, has presented to the UNFCCC Parties and is gaining support from the coalition of rainforest nations and donor countries.</p>	<p>Need for increased efforts to mobilize innovative finances.</p>	<p>The immediate capacity need would be training for the development of the PNG resource mobilization strategy to support the implementation of the NAP. A guide has been developed by the UNCCD Global Mechanism which includes approaches to mobilizing innovative financing. Stakeholders will need training to use this guide.</p>	<p>Make use of the SLM project for PNG, secure resource person and conduct training in the use of the UNCCD Global Mechanism guide to mobilizing resources to support implementation of the NAP.</p>
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**Table 42:** Article 14 – Coordination in the elaboration and implementation of the NAP

10-year Strategic Plan	Status	Main gaps	Capacity Needs	Capacity Actions
	<p>PNG is now just beginning to plan and develop the NAP to address land degradation.</p>	<p>Absence of an institutional arrangement to coordinate implementation of the UNCCD in PNG.</p>	<p>Officers in DEC and partner organizations need training on; roles in; implementation of the NAP, UNCCD reporting process and how to promote and facilitate the mainstreaming of the NAP into their provincial government, sector programs and organizational work plans. Formal linkages between national, provincial and local level government agencies need to be strengthened.</p>	

### Article 15: Regional Implementation Annexes

As with the Sub-regional Action Program (RAP), PNG needs to firstly develop a NAP before seeking participation in the regional implementation annexes

**Table 43:** Article 16 – Coordinate collection, analysis and exchange of relevant short-term and long-term data and information

10-year Strategic Plan	Status	Main gaps	Capacity Needs	Capacity Actions
Outcome 3.2: A baseline based on the most robust data available on biophysical and socioeconomic trends is developed and relevant scientific approaches are gradually harmonized.	Some baseline data on forest use, land use, demographics and agriculture production is being developed for various areas in the country and not necessarily on priority land degradation areas. Given the limited financial and human resources available to the government and the massive land area to be covered, it is recommended that baseline data collection be targeted at priority land degradation areas identified through the NAP development process.	Limited baseline data on forest use, land use, demographics and agriculture production is being developed for various areas in the country.	If priority land degradation sites are determined financial resources will be needed to engage national institutions and experts to gather and analyze baseline data to assist with planning and implementation of sustainable land management interventions. This can include student research programs in some of the national universities as part of a donor-funded scholarship package. Funding is also needed to build capacity of national institutions to analyze baseline data and produce tools for planning and implementing sustainable land management such as land degradation maps, guidelines for improving degraded sites based on soil types etc.	Utilized the SLM project and upcoming GEF 5 cycle of funding to mobilize resources for funding the implementation of the NAP including the prioritization of land degradation areas and development of baseline information on these areas for use in planning, implementing and monitoring sustainable land management interventions.
Outcome 3.3: Knowledge on biophysical and socio-economic factors and on their interactions in affected areas is improved to enable better decision-making.	Data and information on biophysical and socio-economic factors and how they contribute to land degradation in PNG is being developed by training and research institutions. These have helped in designing and implementing past and current interventions aimed at improving land productivity and restoring ecosystem health. There is now the need to prioritize land degradation issues and sites in PNG and upscale research and development work to address the problems.	Priority land degradation issues and sites in PNG still to be confirmed.	Funding resources needed to undertake the following: Engage appropriate national institutions and expertise to facilitate a multi-stakeholder consultation process for establishing indicators and prioritizing land degradation issues and sites in PNG. Develop a program and secure funding to assist communities and resource owners address priority land degradation areas using past experiences and technical expertise.	Engage appropriate national institutions and expertise to facilitate a multi-stakeholder consultation process for establishing indicators and prioritizing land degradation issues and sites in PNG. Develop a program and secure funding to assist communities and resource owners address priority land degradation areas using past experiences and technical expertise.

<p>Outcome 3.5: Effective knowledge-sharing systems, including traditional knowledge are in place at the national, provincial levels to support policymakers and end users, including through the identification and sharing of best practices and success stories.</p>	<p>A recent assessment on the extent of knowledge sharing for sustainable land management in PNG has shown that much work has been done to develop information systems and databases. The need for improved sharing of information led further development of the PNGRIS which was originally developed for the Agriculture sector by CSIRO in 1994. A 3<sup>rd</sup> edition of the PNGRIS was recently made available in 2008 with support from the EU. There is a need for further harmonization of LIS and better sharing of best practices and lessons learnt across national stakeholders.</p>	<p>Limited harmonizing of Land Information Systems and absence of an interagency protocol for information sharing and data standards While there is a lot of data and information generated on land resources in PNG the country does not have a functioning data and information sharing system and it is not easy for resource owners, technical agencies and partners to access them. Very weak data and information management and sharing arrangements within government and between government and stakeholders. Weak capacity of National weather service to manage data and expand meteorological services in the country.</p>	<p>Funding support needed to engage national expertise to continue work in harmonizing Less and develop an interagency protocol for information sharing and data standards. These are already identified as capacity needs in the GEF-UNDP PNG SLM project which is currently in its inception stage of implementation. Strengthen capacity of NWS to provide agro-meteorological services.</p>	<p>The following actions have been included in the SLM project. engage expertise and continue work on harmonization of LIS; and engage expertise to develop an interagency protocol on LIS information access and sharing and data standards and provide training to government and stakeholders.</p>
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**Table 44:** Article 17 – Research and development

10-year Strategic Plan	Status	Main gaps	Capacity Needs	Capacity Actions
<p>Outcome 3.2: A baseline based on the most robust data available on biophysical and socioeconomic trends is developed and relevant scientific approaches are gradually harmonized. Outcome 3.4: Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land in affected areas is improved to develop tools to assist decision-making.</p>	<p>Baseline data on forest resources, soil types and land systems, agriculture systems, biodiversity, water resources, geographical features, representative areas of biodiversity significance and weather patterns are being developed by national agencies and some of these are presented in excellent reports (e.g. the recent state of PNG’s forest report).</p>	<p>Limited use of baseline data on forest use, land use, demographics and agriculture production to guide land resources management and rehabilitation for various areas in the country that are vulnerable or already degraded.</p>	<p>Funding and training needed to enable national institutions, NGOs, private sector and communities to collaborate and compile, analyze existing data to determine priority land degradation or vulnerable sites in the country. Increased funding needed by NARI, FRI, NGOs to initiate and/or expand research work to address land degradation. Funding and training needed for national research, training institutions and NGOs to develop information packages on the linkages between climate change adaptation, drought mitigation and restoration of degraded lands.</p>	

**Table 45: Article 18 – Transfer, acquisition, adaptation and development of technology**

10-yr Strategic Plan	Status	Main gaps	Capacity Needs	Capacity Actions
<p>Outcome 3.4 Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land in affected areas is improved to develop tools to assist decision-making.</p>	<p>PNG has begun building experience and a knowledge base on the interactions between climate change, resource management and livelihoods.</p> <p>The UPNG Centre for Environment has conducted V&amp;A studies in various parts of the country using its staff and providing learning opportunities for student. Experience is being built up on conducting such assessments with communities in a participatory approach and this has also provided the opportunity to promote and raise awareness on the interactions between climate change adaptation, drought mitigation and restoration of degraded lands.</p> <p>The Vision 2050 directional statements under the Pillar – Climate Change and Environmental Sustainability means that V&amp;A work and awareness raising will have to be scaled up over the coming years. There is the potential for UPNG and DEC to work closely with NARI and NFI to develop V&amp;A tools and conduct training workshops and hands on community engagement work to amongst government and NGO field workers.</p>	<p>Limited financial resources to upscale integrated V&amp;A Assessments.</p>	<p>The expertise to develop V&amp;A assessment tools exists within UPNG, UNITECH, DEC, NARI, NFI, NRI and other national institutions.</p> <p>Strategies now need to be developed to up-scale V&amp;A assessment work in PNG and financial resources need to be secured to support the design and implementation of the strategy and/or programmatic approach which includes training and demonstrations of V&amp;A assessments and implementation of adaptation options.</p>	<p>DEC and national partners to begin negotiations with GEF implementing agencies, AusAID, EU and other donors and develop a programmatic approach to addressing climate change adaptation in PNG. The GEF 5 funding cycle presents an opportunity for funding support.</p>
<p>Outcome 3.6: Science and technology networks and institutions relevant to desertification/land degradation and drought are engaged to support UNCCD implementation.</p>	<p>Compared to other Pacific countries PNG has a well established network of many training and research institutions that collectively have the capacity to provide scientific and technology support for the implementation of the UNCCD in PNG. National and international NGOs operating in PNG have also built up expertise and very good experience in addressing sustainable land management issues.</p> <p>Furthermore, national institutions have established very good links with regional and international networks in the areas of sustainable land management, biodiversity conservation and climate change.</p>	<p>Research and technology development to address land degradation in PNG is not well coordinated amongst government, NGOs, private sector and resource owners have limited access to information on and finance for technology options.</p>	<p>DEC and partners developing the NAP could consider including in the NAP a mechanism for coordinating and strengthening collaboration and utilization of national institutions and expertise to support NAP implementation.</p>	

**Table 46: Article 19 – Capacity building, education and public awareness**

10-yr Strategic Plan	Status	Main gaps	Capacity Needs	Capacity Actions
<p>Outcome 4.1: Countries which have carried out their NCSA implement the resulting action plans to develop the necessary capacity at the individual, institutional and systemic levels to tackle desertification/land degradation and drought issues at the national and local levels.</p>	<p>This NCSA is a step in determining capacity needs to address land degradation and drought. The national workshop has provided useful information on a range of capacity needs by various stakeholders. Capacity assessments within institutions and agencies continue to be an integral part of their human resource management systems linked to institutional work plans and performance management systems.</p> <p>The absence of a NAP with clearly measurable national targets for addressing land degradation and mitigating the effects of drought makes it difficult to prioritize interventions and strategically build capacity.</p>	<p>As stated earlier, there is need for training of stakeholders in the development of the PNG NAP, incorporating measurable targets for addressing land degradation and specifying role and responsibilities of organizations.</p> <p>Following completion of the NAP, heads of organizations and personnel targeted for implementation of the NAP need to be trained to establish priority capacity development activities to ensure their organizations are able to successfully carry out their roles in implementing the NAP. This will be linked to the medium term resource mobilization strategy to support the implementation of the NAP.</p>	<p>Government and stakeholders, through the UNCCD coordinating body develop concept papers to present to donors including the GEF to fund priority actions in the NAP and NCSA.</p> <p>National government to increase funding to government agencies to scale up work in research and extension services.</p>	<p>Consultation meeting of heads of organizations and personnel targeted for implementation of the NAP to enable them to prioritize capacity needed by their organizations to implement the NAP.</p>

#### **4.5 Main gaps and capacity needs in implementing the UNCCD in PNG**

##### ***No communication strategy for the UNCCD in place***

The strategy needs to establish key messages for various target audiences on the linkages synergies between land degradation, drought issues, climate change and biodiversity conservation. Training is needed on the identification of linkages and synergies and also on the purpose of a communication strategy, its main features and how it can be developed.

##### ***Limited prioritization of land degradation issues in PNG***

Although various studies have been undertaken to assess the drivers and causes of land degradation in PNG, the government and stakeholders are yet to formally establish priority land degradation issues and/or sites, designate priority sites needing urgent attention as well as research and produce information on the underlying drivers of land degradation and barriers to sustainable land management and how these can be addressed.

##### ***Absence of a national strategy to implement the UNCCD***

PNG does not have a NAP yet, though it is in the process of developing one with funding support from the GEF through the SLM project. Officers within DEC and other key implementing agencies need hands-on training in developing the NAP and aligning it with the UNCCD 10-year Strategic Plan. Training is also needed for developing appropriate biophysical and socio-economic baseline information and indicators to measure the implementation of the NAP.

##### ***Absence of an institutional arrangement to coordinate implementation of the UNCCD***

The NCSA UNCCD stock-take has identified a very wide range of stakeholders across many sectors in the country that are already actively involved in implementing the various provisions of the convention and its strategic plan. Various coordinating mechanisms are also in place for the implementation of sector plans and strategies. DEC needs to establish an appropriate institutional arrangement to coordinate implementation of UNCCD in PNG and be able to facilitate and promote the integration of the NAP into national development planning and other sector plans and policies.

DEC also needs to establish clear duties and performance targets for officers assigned to coordinate and monitor MEAs, and in this case, UNCCD implementation in PNG.

Finally, DEC needs to establish a network of UNCCD contact points within other partner agencies and networks within and outside the country and facilitate the identification of lead technical agencies for UNCCD implementation in PNG. Officers in DEC and partner organizations need training on; roles in the UNCCD reporting process and how to promote and facilitate the mainstreaming of the NAP into their sector programs and organizational work plans; mainstreaming and integrating the UNCCD and NAP into national plans and policies.

##### ***Weak linkages between land degradation, climate change and biodiversity conservation***

Government, NGOs, private sector and training institutions in PNG have independently and sometimes collaboratively undertaken a wide range of work addressing the causes and effects of land degradation and drought. These are well documented in past reports and assessments.

Establishment of a formal coordination mechanism to promote integrated land use planning and land management and support resource owners execute integrated land use planning and management systems, needs to be put in place. An appropriate government agency needs to be identified to coordinate such an approach and provided with the necessary financial and human resources.



***Limited baseline data on forest use, land use, demographics and agriculture production***

These are not necessarily on priority land degradation areas. Given the limited financial and human resources available to the government and the massive land area to be covered, it is recommended that baseline data collection be targeted at priority land degradation areas identified through the NAP development process

If priority land degradation sites are determined financial resources will be needed to engage national institutions and experts to gather and analyze baseline data to assist with planning and implementation of sustainable land management interventions. This can include student research programs in some of the national universities as part of a donor-funded scholarship package.

Funding is also needed to build capacity of national institutions to analyze baseline data and produce tools for planning and implementing sustainable land management such as land degradation maps, guidelines for improving degraded sites based on soil types etc.

***Priority land degradation issues and sites in PNG still to be confirmed***

Data and information on biophysical and socio-economic factors and how they contribute to land degradation in PNG is being developed by training and research institutions. These have helped in designing and implementing past and current interventions aimed at improving land productivity and restoring ecosystem health. There is now the need to prioritize land degradation issues and sites in PNG and upscale research and development work to address the problems.

Funding resources is needed to undertake the following:

- engage appropriate national institutions and expertise to facilitate a multi-stakeholder consultation process for establishing indicators and prioritizing land degradation issues and sites in PNG; and to
- secure funding to assist communities and resource owners address priority land degradation areas using past experiences and technical expertise.

***Limited financial resources to upscale integrated V&A Assessments***

PNG has begun building experience and a knowledge base on the interactions between climate change, resource management and livelihoods. The UPNG and the Department of Provincial and Local Level Government's (DPLLG's) Office of Disaster Management have conducted Vulnerability and Assessment (V&A) studies in various parts of the country. Experience is being built up on conducting such assessments with communities in a participatory approach and this has also provided the opportunity to promote and raise awareness on the interactions between climate change adaptation, drought mitigation and restoration of degraded lands.

Under the Climate Change and Environmental Sustainability pillar of the Vision 2050, V&A work and awareness raising will have to be scaled up over the coming years. There is the potential for UPNG and DEC to work closely with NARI, Forestry Research Institute (FRI) and the National Research Institute (NRI) to develop V&A tools and conduct training workshops and hands on community engagement work to amongst government and NGO field workers

The expertise to develop V&A assessment tools exists within Universities, DEC, NARI, FRI, NRI and other national institutions. Strategies now need to be developed to up-scale V&A assessment work in PNG and financial resources need to be secured to support the design and implementation of the strategy and/or programmatic approach which includes training and demonstrations of V&A assessments and implementation of adaptation options.

***Limited harmonizing of Land Information Systems and absence of an interagency protocol for information sharing and data standards***

A recent assessment on the extent of knowledge sharing for sustainable land management in PNG has shown that much work has been done to develop information systems and databases. The need for improved sharing of information led further development of the PNG Resources Information System (PNGRIS) which was originally developed for the Agriculture sector by Commonwealth Science and Industry Organisation (CSIRO) in 1994. A 3<sup>rd</sup> edition of the PNGRIS was recently made available in 2008 with support from the European Union (EU). There is a need for further harmonization of Land Information Systems (LIS) and better sharing of best practices and lessons learnt across national stakeholders.

***Need for stronger effort in utilizing PNG national scientific and research institutions***

Compared to other Pacific countries PNG has a well established network of many training and research institutions that collectively have the capacity to provide scientific and technology support for the implementation of the UNCCD in PNG. National and international NGOs operating in PNG have also built up expertise and very good experience in addressing sustainable land management issues. Furthermore, national institutions have established very good links with regional and international networks in the areas of sustainable land management, biodiversity conservation and climate change. DEC and partners developing the NAP could consider including in the NAP a mechanism for coordinating and strengthening collaboration and utilization of national institutions and expertise to support NAP implementation.

***Need for a resource mobilization strategy to support the implementation of the NAP***

There have been many initiatives in PNG to mobilize resources for addressing land degradation and sustainable land management. These have been done to address high level sector goals, specific development issues or site and/or area specific problems. As these have been generally *ad-hoc* in nature it is not possible to gauge the impact of donor funding intended to assist PNG address its land degradation issues.

PNG is developing the NAP together with an accompanying resource mobilization strategy. The UNCCD with the support of GEF and its implementing agencies is assisting Parties to develop integrated investment and resource mobilization strategies to support the implementation of the NAP and funding is available to PNG through the SLM project.

On endorsing the SLM project the PNG government has recognized the need to have in place the capacity to develop a Resource Mobilization Strategy to support implementation of the NAP. Main stakeholders involved in developing the NAP and representatives from planning and finance departments need training in the method for developing and implementing the resource mobilization strategy. Donors supporting the PNG government also need to have in place a mechanism to coordinate their support for the implementation of the PNG NAP.

***Weak project cycle management***

Government agencies, research and training institutions, NGOs and community organizations continue to be actively involved in mobilizing financial resources to address land degradation and related issues. Also, PNG continues to receive good levels of funding support from donors, international NGOs, and philanthropic organizations. Better understanding of respective donors requirements and project cycle can help with design and implementation of projects however most of the delays in funding and implementation has been attributed to weak accountability and reporting systems and weak performance management in executing agencies.

Main capacity development needs in this area include:

- training in donor requirements and project cycle;
- training in Project Cycle Management including development of fundable proposals; and
- a review on how best to align donor project implementation with day to day operations of government agencies and partner organizations to minimize overload and ensure timely achievement of project outputs.

***Limited efforts to strategically mobilize innovative finances***

PNG has a long experience with a range of innovative finance and financing mechanisms to support sustainable land management. For example, agriculture commodity boards such as the Cocoa Board levy a fee that is used to support research and extension activities and farmer projects, mining companies have initiated community development programs, micro credit schemes operated with donor funding, south-south cooperation initiatives. Despite its multilateral nature, the EU funding mechanisms in the past has provided PNG with substantial grant funding to strengthen capacity in the mining, agriculture and forestry sectors.

A potential innovative financing mechanism is the REDD+ which PNG has been instrumental in initiating. This has been presented to the UNFCCC Parties and is gaining support from the Coalition of Rainforest Nations and donor countries.

The immediate capacity need would be training for the development of the PNG resource mobilization strategy to support the implementation of the NAP. A guide has been developed by the UNCCD Global Mechanism which includes approaches to mobilizing innovative financing. Stakeholders will need training to use this guide.

## **5. THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE**

### **5.1 Climate Change in PNG**

It is now widely acknowledged that the causes of climate change are mostly anthropogenic in nature and that its effects will have far reaching consequences across the globe. Governments have been exhorted by the world's scientists to expedite and scale up implementation of mitigation measures and prepare to adapt in order to 'avoid the unmanageable and manage the unavoidable'.

Vulnerability to climate change is a function of level of exposure and level of coping capacity or resilience. PNG is already experiencing the impacts of climate change and understanding better the nature of its vulnerability. Coastal communities are already experiencing erosion of beachfronts due to rising sea levels and increasing frequency of storm surges and king tides. For example, citizens of the islands of the Carteret Islands are now being assisted to relocate to higher ground in the Autonomous Region of Bougainville (ARB); and king tides have caused wide spread damage in the New Guinea islands region. Climate models predict that the 1997 ENSO event which brought much hardship may become more frequent and the warming of oceanic waters will seriously affect marine life especially corals.

According to recent models and predictions on sea temperature increases, the Melanesian sub-region may be the most affected area in the Pacific with potentially significant losses in marine biodiversity due to likely future occurrences of coral bleaching. Studies on the effects of climate change on disease incidence in the Pacific have predicted that cases of malaria and dengue are expected to increase significantly in the coming years in PNG, Fiji, Vanuatu and the Solomon Islands.

Even in the absence of climate change, the people and environment of PNG are already experiencing other dimensions of vulnerability due to increasing populations and the rapid expansion of modernization across the country with its concomitant demand on scarce resources. By overlaying the socio-economic and environmental vulnerabilities of PNG with the predicted climate change impacts and consequences, the gravity of the vulnerability of local communities, including to climate related disasters, becomes more apparent. The incremental costs expected to be borne by PNG is likely to be significant as a result of climate change and will be an added burden on national budgets and community resources.

### **5.2 Global trends and recent developments**

In the international climate change negotiations arena, PNG has been consistent in calling on developed countries to cut back on their Green House Gas (GHG) emissions and increase funding to support developing and least developed vulnerable countries strengthen their ability to cope with and adapt to the projected impacts of climate change.

While the outcome of the recent Copenhagen CoP in November 2009 has not been well received by the global community, PNG has shown leadership amongst the Coalition of Rainforest Nations and proactively pressed for a new mechanism, REDD+, which would not only contribute to minimizing global GHG emissions but also enhance resilience of developing countries through protection of forests and the ecosystem services they provide. At the time of the NCSA there is optimism that the global community will agree on a regulatory framework for REDD+ during the next CoP in Mexico. Already an Adaptation Fund is being established and funding levels for adaptation are expected to increase in the coming years. As a member of the GEF, PNG has immediate access to enabling and capacity building funds through the GEF Implementing Agencies such as the UNDP.

### 5.3 The UNFCCC

PNG became a Party to the UNFCCC in 1993 and submitted its 1<sup>st</sup>NC in 2000. PNG is currently developing its 2<sup>nd</sup>NC and implementing its national component of the Pacific Adaptation to Climate Change Project and the Pacific Islands Greenhouse Gas Abatement and Renewable Energy Project with funding from GEF through UNDP.

### 5.4 The UNFCC and its Status in PNG

**Table 47:** Article – Enabling environment and Mainstreaming

Status	Main gaps	Capacity Needs
<p>PNG has mainstreamed climate change into its Vision 2050, DSP, MTDS and is currently formulating a CCDP.</p> <p>OCCES was established within the Prime Ministers' Office and institutional capacity building arrangements developed.</p> <p>A National Climate Change Task Force has been established.</p> <p>DEC is developing the ESEG Policy which will complement the CCDP.</p> <p>Both the PoWPA and CTI have incorporated climate change into conservation strategies and programs.</p> <p>PNGFA has developed a Forestry and Climate Change Framework which has been endorsed by NEC.</p> <p>NEC has endorsed the establishment of EPA (to oversee GHG emissions).</p> <p>National reviews and surveys have incorporated climate change issues (e.g. Impacts of climate on agriculture in PNG).</p> <p>PACC and 2<sup>nd</sup>NC projects supporting mainstreaming.</p> <p>CCDP to guide development of climate change policies, low carbon and adaptation strategies</p> <p>Government-private sector collaboration is being progressed to reduce GHG emissions.</p> <p>Interim climate change policy review committees established.</p> <p>A climate change ministerial committee is being proposed.</p>	<p>Mainstreaming of climate change into most sectors, national institutions and provincial and local level government policies, plans and strategies.</p> <p>Mainstreaming of adaptation to climate change into government development planning and budget development processes.</p> <p>Limited public awareness on need to mainstream climate change.</p> <p>Laws and regulations need to be reviewed to incorporate climate change, this should be guided by the CCDP.</p>	<p>Government agencies, NGOs, Private sector, and communities need awareness and training on climate change and mainstreaming, the mandate and roles of the agencies and mechanisms established to oversee and coordinate climate change work in PNG.</p>

**Table 48:** Article 12 – National Communications and National Action Plans

<b>Activity:</b> Greenhouse gas (GHG) inventories, and emission database management, and systems for collecting, managing and utilizing activity data and emission factors		
Progress	Main gaps	Capacity Needs
<p>GHG inventory developed during the 1<sup>st</sup>NC and is currently being updated through the 2<sup>nd</sup>NC.</p> <p>Training undertaken through the 2<sup>nd</sup>NC project and database has been established.</p> <p>GHG inventory data and reports used to guide planning and implementation of low carbon approach.</p> <p>CCDP has established a preliminary baseline and projected increases by sectors..</p>	<p>System for collecting and managing data still to be established as GHG inventory information still scattered.</p> <p>These need to be collected, analyzed and used for planning purposes.</p>	<p>Need to expand training on GHG inventories in the private sector and sector agencies.</p> <p>Training to develop and embed system and protocols for data collection and management.</p>
<b>Activity:</b> V&A		
Progress	Main gaps	Capacity Needs
<p>PNG 1<sup>st</sup> NC has provided an overview of the main areas of vulnerability in the country.</p> <p>2<sup>nd</sup>NC will produce a V&amp;A overview for PNG.</p> <p>V&amp;A training has been carried out for targeted stakeholders and V&amp;A assessments undertaken in some provinces.</p> <p>Bishop Museum has undertaken an assessment of the vulnerability of PNG ecosystems to climate change.</p>	<p>National adaptation strategy still to be developed.</p> <p>PNG needs to scale up its V&amp;A training and assessments across the different sectors and provinces.</p> <p>In addressing extreme climatic events, PNG needs to establish a policy or process that embraces DRR in addition to DRM.</p>	<p>Government and NGO field officers need training in V&amp;A assessments.</p> <p>Menu of V&amp;A methods need to be developed and made available to stakeholders</p> <p>Need for increased funding to scale up V&amp;A work in PNG.</p> <p>Policy makers need to have awareness raised on DRR and DRM.</p>

NARI has undertaken a VA for PNG in the Agriculture sector NDO undertaken VA. Methodology to undertake cost-benefit analysis of adaptation options being trialed – CCDP. Assessment of vulnerability of PA undertaken under the POWPA.	Strategy to reform and strengthen institutions to address climate change. Integration of V&A in EIA process. Menu of V&A methodologies to be developed for on-going use	
<b>Activity: Implementation of adaptation measures</b>		
<b>Progress</b>	<b>Main gaps</b>	<b>Capacity Needs</b>
Pilot adaptation projects are being planned for implementation in the near future. Re-location of Carteret Islanders to the ARB. OCCES has developed adaptation project proposals for presentation to donors. Adaptation funding mechanism available through donors, and the CTI	PNG needs to scale up its V&A training and assessments across the different sectors and provinces. Policy and guideline for relocations of vulnerable communities. Incorporation of sustainability considerations in adaptation projects. Guideline for adaptation measures to enhance resilience of ecosystems.	Raise awareness on adaptation options and promote traditional adaptation practices and knowledge. Need for increased funding to scale up adaptation programs and actions in PNG. Collate information on lessons learnt.
<b>Activity: Assessment and implementation of GHG abatement options</b>		
<b>Progress</b>	<b>Main gaps</b>	<b>Capacity Needs</b>
Following a request from the Prime Ministers Office DEC is developing with stakeholders a CCDP and has established a Low Carbon Working Group to develop and guide implementation of a Low Carbon development strategy for PNG.	This is a new area of development planning in PNG and there is need for awareness and training for targeted stakeholders.	Awareness raising on the CCDP and Low Carbon development strategy. Review of legislation to support the low carbon development strategy. Training of stakeholders on the implementation of the low carbon strategy.
<b>Activity: Research and systematic observation</b>		
<b>Progress</b>	<b>Main gaps</b>	<b>Capacity Needs</b>
PNG NWS has a network of weather stations. Private sector and institutions also collecting weather data. NARI embarking on an initiative to enhance capacity for drought preparedness in the agriculture sector. FRI conducting research and assessments on forest and soil carbon. FORCERT has conducted carbon assessments. Smithsonian Institute, DEC, FRI, and the Binatang Research Institute developing partnerships for carbon assessments in PAs. Sea level rise monitoring continues with monitoring equipment maintained and data collected in Manus Province. NGOs are undertaking studies on traditional knowledge and coping mechanisms on adaptation. NOAA sea surface temperature monitoring program. 2 <sup>nd</sup> NC to undertake synthesis of adaptation initiatives in PNG. International Waters Resource Management project supporting river monitoring activities and data collection.	No system for private sector and institutions to provide weather data to NWS. Need research to develop data that can determine stress points of different ecosystems.	Capacity of NWS need strengthening to expand its work across the country, process data and make information packages available to target users. Training in data management and information dissemination Funding and development of a project to assess stress points of different ecosystems unique to PNG. Funding and training to enable national research institutions to expand work on carbon assessments and to enable NGOs to participate in research and systematic observation.
<b>Activity: Development and transfer of technology</b>		
<b>Progress</b>	<b>Main gaps</b>	<b>Capacity Needs</b>
Government finalizing the Electricity Industry Policy that can guide technology development. Private sector and NGOs involved in promoting and implementing renewable energy 2 <sup>nd</sup> NC to undertake Technology Needs Assessment (TNA),	Government policy to support RE in PNG including use of economic incentives.	Awareness raising and development of case studies and information on best practice in the areas of mitigation and adaptation.

<b>Activity: improved decision-making, including assistance for participation in international negotiations</b>		
<b>Progress</b>	<b>Main gaps</b>	<b>Capacity Needs</b>
PNG has been actively involved in UNFCCC negotiations and is an initiator and lead negotiator on REDD+.	Pre-CoP and post-CoP briefs and reports are not made available to public on a timely manner. Establish a network of technical agencies, research and training institutions that can contribute to development of negotiation positions.	On-going training for government officials on the UNFCCC negotiations. Long term capacity building strategy
<b>Activity: Education, training and public awareness in the implementation of the Convention and Copenhagen Accord</b>		
<b>Progress</b>	<b>Main gaps</b>	<b>Capacity Needs</b>
Formal courses and short training workshops on climate change is being conducted Climate Change in Primary and Secondary School Curricula.	Need to develop a training and a communication strategy for climate change.	Funding and expertise to develop a communication strategy and develop training materials on climate change for use in formal and informal education.
<b>Activity: Information and networking, including the establishment of databases and the acquisition of information and communication technologies</b>		
<b>Progress</b>	<b>Main gaps</b>	<b>Capacity Needs</b>
Data and information that can be used for V&A is being developed across government agencies, training and research institutions, NGOs and private sector. Geographical Inform Systems and remote sensing capacity being developed in government agencies and training institutions.	Limited use of web-sites to promote climate change and mitigation and adaptation programs and initiatives in the country. Limited sharing of information amongst agencies and stakeholders. Need for a policy and protocols for information sharing.	Consultations and training to strengthen information and networking, establishment of databases and acquisition of information and communication technologies.
<b>Activity: Financial mechanisms</b>		
<b>Progress</b>	<b>Main gaps</b>	<b>Capacity Needs</b>
PNG is promoting and negotiating a legal framework on REDD+ which is also a financial mechanism to support adaptation and mitigation. Donors providing funding opportunities for climate change adaptation and mitigation in PNG. Donor coordination mechanism in place to support funding for climate change related programs and activities in PNG. PNG is a lead player in the global agenda on REDD+ and currently developing capacity and strategies in anticipation of a regulated global mechanism. NGOs undertaking bottom-up approach and community based training on carbon assessments.	Governance and financial management guide and arrangements for REDD+ at the national, provincial and community levels still to be established. Prioritizing mechanism to support strategic allocation of donor funds to address climate change adaptation in PNG.	Awareness raising for government officials, public and resource owners on climate change and REDD+. Funding resources and technical advice needed for developing and implementing MRV methodologies. Funding for consultations and training on REDD+ and to develop and promote governance and financial management arrangements.
<b>Activity: Monitoring progress of Convention implementation</b>		
<b>Progress</b>	<b>Main gaps</b>	<b>Capacity Needs</b>
2 <sup>nd</sup> NC is providing the opportunity to evaluate progress with mitigation and adaptation in PNG and its findings will be disseminated nationally. ESEG is being developed as well as the CCDP. UNFCCC related activities is linked to monitoring and reporting mechanisms for the national strategies, sector plans and corporate plans of government agencies.	No system for private sector and institutions to provide weather data to NWS. Need research to develop data that can determine stress points of different ecosystems.	Consultations and training to strengthen information and networking, establishment of databases and acquisition of information and communication technologies.

## **5.5 Main gaps and capacity needs in implementing the UNFCCC in PNG**

### ***Absence of a national climate change policy for PNG***

At the systemic level of capacity, PNG is yet to have in place a formal national climate change policy. This is essential and will be needed to guide PNG's approach to addressing the various climate change challenges including REDD+ and the prioritization of adaptation and mitigation actions. PNG has already experienced relocating disaster refugees (e.g. Manam Islanders) and peoples threatened by climate change-induced inundation (e.g. the Carteret Islanders to the ARB) and there are lessons to learn which can assist the government put in place a formal policy on relocation as an adaptation measure. A National Electricity Industry Policy exists and should guide PNG's contribution to global mitigation efforts.

### ***Absence of a national adaptation strategy***

While V&A assessments have been carried out in some parts of PNG, there is the need to have in place a national and provincial level adaptation to climate change strategy. PNG's Vision 2050 target for climate change and environment sustainability includes the development of mitigation and adaptation measures in all provinces by 2015. The current 2<sup>nd</sup>NC process includes capacity building for V&A assessments and will contribute significantly to preparing nationals for the task ahead. PNG's growing capacity to map and monitor vulnerable areas and forest cover for REDD+ and conservation purposes will be greatly enhanced in the near future with acquisition of high resolution satellite imagery. A United Nations REDD+ project is being implemented to assist PNG prepare for and develop a national framework on REDD+, and this should contribute to strengthening capacity for REDD+ at all levels.

### ***Lack of a Climate Change Communication Strategy***

There is growing national concern as well as excitement over climate change and REDD+ and public uneasiness about the limited dialogue taking place across the country on the subject. The recent past has seen a rising influx of carbon trade companies and agents (some of these have been termed 'carbon cowboys') intending to negotiate with forest resources owners and the national government over carbon trading arrangements. Having a well informed public is essential, thus there is an urgent need to have in place a national climate change communication strategy with targeted messages that can help empower resource owners, all levels of government to make wise and informed decisions on matters pertaining to climate change, especially REDD+.

### ***Weak capacity of the Designated National Authority to manage the Clean Development Mechanism***

With its large scale geothermal and hydropower resources, PNG is a strong candidate for the Clean Development Mechanism (CDM) market and already has one registered CDM project in the use of geothermal energy for electricity on the gold-rich island of Lihir. The potential for more CDM projects in PNG requires the strengthening of a Designated National Authority.



## 6. CROSS-CUTTING ENVIRONMENTAL AND CAPACITY ISSUES

In the context of the NCSA, cross-cutting environmental issues are those that are relevant to more than one MEA, focal area or sector. This also means that addressing the issue requires an integrated, coordinated and collaborative approach involving a number of agencies. PNG has many cross-cutting environmental issues that require greater attention by government agencies and stakeholders working together in a coordinated fashion people. Some of the more pertinent cross-cutting environmental issues covered in this NCSA report include:

- Climate change,
- REDD+,
- Integrated watershed management,
- Integrated coastal zone management,
- Land degradation,
- HIV, and
- Governance and decentralization.

The purpose of the cross-cutting assessment is to identify environment and capacity issues that cut across the Rio conventions, require inter-agency coordination and cooperation and provides opportunities for synergies.

Cross cutting issues can be defined in a number of ways. For example, from the perspective of the Rio Conventions, some of the environmental and capacity issues cut across two or all three of the conventions i.e. each of the conventions require Parties to address a similar or very closely related issue (e.g. ICZM management is important for not only protecting ecosystems under the UNCBD, but also for sustainable land management and mitigating the effects of drought under the UNCCD, and building resilience for communities and ecosystems from the effects of climate change under the UNFCCC).

From the perspective of national environmental management, some of the environmental and capacity issues cut across a number of national environmental issues (e.g. unsustainable water resources management or water in-security will affect biodiversity, water resources, habitats and ecosystem services, poverty levels, livelihoods, etc.).

Cross-cutting issues are complex and multi-dimensional and therefore require effective coordination amongst agencies, coordinated information management, joint research, sustained collaboration, cooperation and integrated management approaches. It is recognized that the absence of a concerted and sustained effort to address cross-cutting issues can lead to problems that are also multi-dimensional in nature (e.g. limited cooperation between all levels of government, NGOs and other stakeholders in the area of water resources management can result in limited awareness of people on the causes and effects of human activity on quality of water resources, unchecked contamination of water sources, outbreak of diseases, removal of vegetation cover in catchment areas, etc.).

From the perspective of addressing national sustainable development challenges, this will also need to involve looking at wider social, political and economic issues that are also linked to environmental issues. In PNG this includes issues such as weak governance, HIV and poverty levels.

Cross-cutting issues identified during the NCSA, have also been highlighted in previous various assessments, strategies and reports, the most recent being the PNG Vision 2050 strategy document.

## **6.1 Main cross-cutting gaps and capacity need in implementing the Rio Conventions in PNG**

### ***Limited knowledge and information management***

In a recent study to design the SLM project it was found that the knowledge and human capacity of institutions in several key responsible agencies addressing SLM is adequate but needs to be coordinated and managed better through a designated agency and/or institution. The NCSA has also found that information sharing between government agencies and with other stakeholders is very inadequate and needs improving to support coordination and an effective enabling environment.

DEC needs to facilitate the establishment of mechanisms including information sharing protocols for government and civil society institutions to gain access to and share information from available national, regional and international databases and information systems. DEC should also consider seeking further support of SPREP in making information available through the Pacific Environment Information Network easily accessible by national stakeholders. There is a definite need to conduct an information audit with the aim of developing an effective information management system directed at meeting user needs; and to establish effective and efficient information systems, including the development of appropriate environmental indicators, to ensure informed decision making, measure progress in policy implementation and enable public participation in environmental governance. Overall, the capacity of government to collect, analyse and use relevant information and knowledge for environmental management from all sources including formal, non-formal and traditional sources needs to be strengthened. Finally, the dissemination of information through formal and informal channels including mass media in an accessible format needs to be promoted.

### ***Limited coordination of national strategies for MEA implementation***

Coordination of MEA implementation in PNG is very weak. At the time of the NCSA, the main coordinating mechanism for the Rio Conventions is/was the MDG 7 Technical Committee. There is a need for a Rio Convention-specific coordinating bodies that are able to provide an inter-agency and integrated coordination role that links to the MDG 7 Committee. A NCC was established in 2003 to advise the Minister of Environment and Conservation, currently needs to be reviewed with regards to its functions and responsibilities. Some of the objectives of the NBSAP include the strengthening of the NCC and the establishment of an NBSAP coordination sub-committee. The NAP and any climate change national adaptation strategy will need similar coordinating mechanisms, once established.

The prominence placed by the national government on REDD+ and the huge expectations created amongst resource owners poses the biggest challenge PNG government agencies will ever face in terms of inter-agency coordination. REDD+ is a classic cross-cutting capacity and environmental issue involving many sectors of the economy. At the time of the NCSA, PNG has yet to establish a formal coordinating mechanism for REDD+. If not urgently addressed, this will cause tensions amongst stakeholders resulting in weak coordination and collaboration across government agencies resulting also in resource owners obtaining limited guidance and support.

DEC (and the OCCES?) need to provide an effective enabling environment that enables and empowers national stakeholders to engage with the implantation processes of the Rio Convention and also to facilitate the engagement of development partners and international research and technological institutions with people, institutions and the national sustainable development agenda of PNG. This enabling environment can be in the form of enabling policies, effective coordination, sharing of information, donor liaison etc by officers within DEC. In summary, the

capacity of PNG to engage in the Rio Conventions hinges on the capacity of DEC (and the OCCES?) to play their roles as focal points.

During the planning phase for the detailed implementation of Vision 2050, the DSP, the MTDS, the ESEG and the CCDP; there needs to be a concerted review and renewed approach to developing and strengthening an integrated multi-agency coordination mechanism. A review and strengthen national and provincial coordination mechanisms for the Rio Conventions ensuring clear roles and responsibilities, implementation milestones and alignment with an established inter-agency coordination arrangement also needs to be done. Following completion and/or review of the Rio Convention-oriented national strategies, DEC and other supporting agencies should hold training workshops to raise awareness and clarify roles and responsibilities for their implementation and monitoring and clarify roles of provincial and local level governments. Finally, the development of a communication strategies and tools for promoting the Rio Conventions, their associated national strategies and their implementation and coordination arrangements in PNG.

#### ***Limited communication and awareness raising***

Many messages are being communicated to the public concerning the environment and sustainable development issues dealt with by the Rio Conventions. The NCSA has found that the level of public awareness particularly in the rural areas is still below expectation and messages are not consistent and strategically targeting the right target audiences.

There is thus a need to plan and conduct training in the development of communication strategies for targeted stakeholders. To do this, DEC needs to secure funding, develop and implement communication strategies for the Rio Convention, and the development policies such as Vision 2050, the DSP, the MTDS, the ESEG, and the CCDP.

#### ***Limited resource mobilization and project management***

PNG is yet to develop resource mobilization strategies to support the implementation of the Rio Conventions. This is an important gap in their implementation. Programmes and projects continue to be financed and implemented on an *ad hoc* basis and target areas for interventions as and when funding opportunities arise. Utilization of GEF funds by PNG has been very inefficient resulting in long delays in implementation and project outputs normally not achieved in a timely manner. PNG has an individual country allocation from the GEF and needs to improve on its portfolio of projects through improved project administration and management arrangements in collaboration with the GEF Implementing Agencies, particularly the UNDP.

For the UNCCD NAP, plan and conduct training for stakeholders on developing Integrated IFS using the guide developed by Global Mechanism of the UNCCD. Using the same guideline and method for the UNCCD NAP, similar training and consultations should be conducted to adapt the IFS guide for use with the NBSAP. Plan and implement training in project management for targeted stakeholders

#### ***Limited partnerships and wide participation***

The limited reach of government services to rural areas is recognized in the Vision 2050 and is an indicator of the weak partnerships between and active participation by stakeholders to implement MEAs in PNG. At the strategy level there is still an absence of a policy or strategy providing the basis and guidance for up-scaling participation and participatory approaches. It is expected that this will be addressed by the national government in its Vision 2050 operational plans. DEC has embarked on developing a stakeholder engagement strategy. With systems in place to enhance partnerships and participation there will need to be a concomitant rise in financial resources and trained personnel within lead agencies. Roles of all levels of governments, as well as NGOs, and

other stakeholders in terms of partnerships with resource owners will need to be clearly defined and strongly supported with financial and human resources. NGOs have experience working with communities and need to play a stronger part of the government's strategies and plans to implement the Rio Conventions. Partnerships with the private sector should also be enhanced through government promoted Public Private Partnership policy and strategy.

***Limited institutional and organizational capacity of focal institution***

DEC is in the process of re-aligning its corporate plan and structure to deliver on the ESEG, the MTDS, the DSP, and the Vision 2050. Despite the flux, DEC needs to anchor down and consolidate its role as the focal point to many of the MEAs and strengthen its capacity to coordinate, monitor, and implementation of convention related strategies. The NCSA has found this to be a weak area in DEC and needs improvement. Officers ToRs do not clearly stipulate their roles with MEA implementation and their Annual Work Plans need to have clearly measurable targets associated with implementation processes for the Rio Conventions. A stakeholder engagement strategy has been developed and needs to establish strategies for enhancing stakeholder engagement in the planning and implementation of the Rio Conventions. This is not yet clearly articulated.

***Limited involvement in MEA negotiations and reporting***

Over the past years, some government officers have gained good experience and training in MEA negotiations and have been able to engage in the CoP processes and meetings of subsidiary bodies. While participation and engagement has been satisfactory there is still the need for wider stakeholder involvement and awareness on the processes prior to and after CoPs and related meetings. There is no clear and coordinated process for seeking stakeholder input into national positions during pre-CoP preparations and post-CoP reporting and information dissemination is poor. The low stakeholder interest and awareness on the Rio Conventions can be attributed to this.

***Limited mainstreaming of the Rio Conventions across government and other stakeholders***

The PNG government is making good progress in mainstreaming climate change into its national plans and strategies. The level of prominence accorded to climate change is reflected in the establishment of the OCCES within the Office of the Prime Minister (though its future is still being determined) and the recent development of the CCDP. REDD+ as a mitigation, adaptation and conservation policy tool is gaining prominence and being mainstreamed into the forestry and environment sector. It is fast becoming an important trade issue for PNG and needs to be mainstreamed into national commerce and trade policies and strategies. In connection with the UNCCD, SLM and food security does not feature strongly in the Vision 2050 long term strategy pointing to the need for more efforts on mainstreaming and the need to support further, a National Land Use Policy.

## 7. CAPACITY DEVELOPMENT STRATEGY

The following environmental objectives for the Rio Conventions is proffered here as a possible guide to moving forward to further implementation of the Rio Conventions (see Tables 49-52 for the UNCBD, Tables 53-60 for the UNCCD, and Tables 61-71 for the UNFCCC).

### 7.1 The UNCBD

**Table 49:** UNCBD Environmental Objective 1

PNG obtaining Protected Area coverage of 10 % for terrestrial ecosystems by 2010, and 10 % for marine ecosystems by 2012 as per UNCBD obligations and as detailed in the NBSAP; PNG is also well on its way towards protecting 20 % of terrestrial ecosystems from climate change impacts.			
Capacity Output	Indicators	Means of Verification	Assumptions
National agencies and other stakeholders can effectively progress Protected Areas establishment.	Number of Protected Areas strengthened, rehabilitated or developed.  Number of personnel involved in Protected Area activities.	National Communications to the UNCBD.  Policies implemented, and legislation enacted.  Vision 2050, MDG, and government monitoring reports.  Professional, competent and world standard research programs on environment conducted.  Gazettal and/or legal recognition of Protected areas.  UNEP Protected areas register.	Appropriate funding and expertise is available.  Appropriate policies and legislations enacted.
Proposed Actions	Lead agencies	Suggested Priority Partners	Duration
Complete the NBSAP review, and formalise NBSAP Coordinating Committee.	DEC	DAL, Development partners, DMPGM, Donors, MRA, NAQIA, NARI, NFA, NGOs, PNGFA, Private sector, Research institutions, Universities	2010
Review and update legislation to ensure complementarity in sustainable resource use and the incorporation of biodiversity conservation considerations including protection of intellectual property.	DEC	DAL, Development partners, DMPGM, Donors, MRA, NAQIA, NARI, NFA, NGOs, PNGFA, Private sector, Research institutions, Universities	2010-2011
Implement PoWPA activities in accordance with the NBSAP priorities, and new legislative processes; and	DEC	DAL, Development partners, DMPGM, Donors, MRA, NAQIA, NARI, NFA, NGOs, PNGFA, Private sector, Research	2010-2015

ensure these are mainstreamed across all government agencies/stakeholders.		institutions, Universities	
Review the functions of PINBio to assist with strengthening biodiversity conservation programs.	To be determined	DAL, Development partners, DMPGM, Donors, MRA, NAQIA, NARI, NFA, NGOs, PNGFA, Private sector, Research institutions, Universities	2010
DEC to establish mechanisms for monitoring and informing types of inputs by NGOs.	DEC	NGOs, DNPM, DCD, DPLLG	2010-2011
Develop a meta-database of biodiversity information sources (internal and external).	DEC	PNGFA, DAL, NSO, Donors, DEWHA, CSIRO, Universities, Research institutions, NGOs, Private Sector	2010-2015
Design and utilize methodologies and indicators for monitoring and evaluating environmental impacts.	DEC	PNGFA, DAL, AusAID, DEWHA, CSIRO, Universities, Research institutions, NGOs, Private Sector	2010-2011
Develop invasive species policy, and implement.	DEC	DAL, NAQIA, NARI, SPREP, Pacific Invasive Initiative, Secretariat of the Pacific Community	2010-2011
Engage Resource Mobilisation Specialist to fund raise and coordinate funding streams.	DEC	Department of Finance, Department of the Treasury, Development partners, DFAT, DNPM, Donors	2010.

**Table 50: UNCBD Environmental Objective 2**

Integrate environmental education in all programmes, levels, curricula and disciplines of formal and non-formal education and in the National Education Plan.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
The development and implementation of education and communication strategies is addressing public participation needs, and is readily accessible and understood by all stakeholders.	Number of curriculum modules at various levels of education institutions modified or developed.  Number of materials produced.  Raised public awareness?	DoE reports.  New materials produced, and distributed to stakeholders, particularly schools.  Vision 2050, MDG, and government monitoring reports.	Appropriate funding and expertise is available.
Proposed Actions	Lead agency	Suggested Priority Partners	Duration
Review and enhance national curricula which emphasises biodiversity's contributions to local and national welfare, emphasises biodiversity's contributions to the health of ecosystems, and tie ecological, economic, and social themes together to ensure that students of all schools receive formal instruction on	DEC and DoE	NGOs, Donors, Universities, Research institutions	2010-2012

the nature and value of biodiversity, and on the interrelationship between biodiversity and the environment.			
Link biodiversity and ecosystem themes with community assistance programmes, including primary health care, education; and agricultural, forestry and fisheries extension programmes.	DEC and DoE	DoH, DPLLG, DCD, DAL, PNGFA, NFA, NGOs, Private sector	2010-2015
Enhance environmental literacy through the use of all forms of media.	DEC	NGOs, Print media, Radio stations, Television stations	2010-2015
Develop affordable, popular, accessible, and comprehensive field guides to the biodiversity of PNG.	DEC	NGOs, Research institutions, Universities	2010-2015

**Table 51: UNCBD Environmental Objective 3**

Incorporate ESEG, CCDP and Ecosystem-based Management (EBM) principles into all development planning to ensure environmental sustainability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
All development activities incorporate principles of sustainable development.	Number of development programs vetted through the DEC (and the newly formed EPA).	EIA reports. DEC (EPA) decisions. Provincial 5 year plans that incorporate sustainable development principals. Vision 2050, MDG, and government monitoring reports.	Appropriate funding and expertise is available.  Private sectors support environmental monitoring and compliance.
Proposed Actions	Lead agency	Suggested Priority Partners	Duration
Institutionalise strategies for government and other stakeholders to partner collaboratively for implementing ESEG, CCDP and EBM principles.	DEC	DNPM, government agencies, Private sector, NGOs	2010-2012
Link development activities and EIA (application of EIA for resource management).	DEC	MRA, DMPGM, PNGFA, DAL, NFA, Private sector, NGOs	2010-2011
Develop conservation programmes that integrate conservation activities and protected area management with national development agendas.	DEC	NGOs, Universities, Research institutions	2010-2015
Ensure that development personnel, land-use planners, aid agencies and the national and provincial planning	DEC	Donors, NGOs, Universities, Research institutions, DPLLG, DNPM,	2010-2011

authorities have access to information about biodiversity/ecosystems (this should include information about the location of biological 'hot spots', complimentary and rare /endangered species/ecosystems.			
Develop conservation programmes that take an integrated coastal zone management (ICZM) plan for the entire coast of PNG.	DEC	NFA, PNGFA, DAL, NGOs, Universities, Research institutions, DPLLG, DNPM, NMSA	2010-2015
Create an integrated system of incentives and disincentives at the national and local level to encourage the conservation and sustainable use of biodiversity.	DEC	NFA, PNGFA, DAL, NGOs, Universities, Research institutions, DPLLG, DNPM, CDC	2010-2012
Strengthen inter-sectoral and National and Provincial coordination in biodiversity conservation and management.	DEC	NFA, PNGFA, DAL, NGOs, Universities, Research institutions, DPLLG, DNPM, CDC	2010-2015
Design and utilize methodologies and indicators for monitoring and evaluating impacts.	DEC	UNDP, Universities, Research institutions	2010-2011
Ensure that the draft Biosafety and Biotechnology Bill and the National Biosafety Framework are approved by the Parliament.	DEC	DJAG, NEC, NAQIA, NARI, DAL, Universities, Research institutions	2010



**Table 52: UNCBD Environmental Objective 4**

Establish effective and efficient information systems, including the development of appropriate environmental indicators, to ensure informed decision making, measure progress in policy implementation and enable public participation in environmental governance.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Appropriate information is being collected through targeted research and disseminated amongst stakeholders.	PNG's knowledge base is expanding.  DEC has established a storage and clearing house for information.	Accessible database established. User log.  Number of partners.  Vision 2050, MDG, and government monitoring reports.	Appropriate funding and expertise is available.  All stakeholders see value in supporting information collection, storage and dissemination.
Proposed Actions	Lead agency	Suggested Priority Partners	Duration
Conduct an information audit with the aim of developing an effective information management system directed at meeting user needs.	DEC	Donors, NGOs, Universities, Research institutions, Private sector	2010
Develop a meta-database of biodiversity information sources (internal and external).	DEC	Donors, NGOs, Universities, Research institutions, Private sector	2010-2015
Strengthen and optimise the capacity of government to collect, analyse, use and disseminate relevant information and knowledge for environmental management from all sources including formal, non-formal and traditional sources.	DEC	PNGFA, DAL, NSO, AusAID, DEWHA, CSIRO, Universities, Research institutions, NGOs, Private Sector	2010-2015
Develop standardized formats and establish guidelines on the responsibilities of storing, access, sharing, citing and use of biodiversity information among local institutions involved in biodiversity issues.	DEC	PNGFA, DAL, NSO, AusAID, DEWHA, CSIRO, Universities, Research institutions, NGOs, Private Sector	2010-2011
Strengthen inter-sectoral and National and Provincial coordination in biodiversity conservation and management.	DEC	DPLLG, DNPM	2010-2012
Strengthen existing collaborative biodiversity research between local institutions, and local and international institutions and organizations (cross-reference to MoUs and/or MoAs).	DEC	PNGFA, DAL, NFA, NSO, Donors, DEWHA, CSIRO, Universities, Research institutions, NGOs, Private Sector	2010-2015

## 7.2 The UNCCD

**Table 53:** UNCCD Environmental objective 1

Productivity of land resources in PNG is maintained and improved and supporting the resilience of ecosystems, livelihoods of communities and overall economic growth. Resilience of ecosystems, land production systems and people of PNG strengthened to mitigate and adapt to the effects of climate change.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of government and stakeholders to plan, develop and implement the NAP is enhanced.	National stakeholders effectively contributing to the development of the NAP.  NAP endorsed by NEC and lodged with the UNCCD Secretariat by end of 2010.	4 <sup>th</sup> NC to the UNCCD.  NAP Document.  NEC Endorsement.  SLM Project Report.	GEF funding available on timely basis.  Stakeholders have time to commit to the NAP development process.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Secure funding support, plan and implement national consultations for the development of the NAP.	DEC	UNDP	2010
Develop ToR and constitute a coordinating body for the UNCCD and NAP planning and implementation in PNG.	DEC	UNDP, PNGFA, DAL, DLPP, DNPM, DPLLG	2010
Conduct multi-agency awareness and training program on the UNCCD.	DEC	UNDP, PNGFA, DAL, DLPP, DNPM, DPLLG	2010

**Table 54: UNCCD Environmental objective 2**

Productivity of land resources in PNG is maintained and improved and supporting the resilience of ecosystems, livelihoods of communities and overall economic growth. Resilience of ecosystems, land production systems and people of PNG strengthened to mitigate and adapt to the effects of climate change.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of national stakeholders to access information and participate in international, regional and national science and technology networks enhanced.	Increased participation by PNG nationals and institutions in international, regional and national science and technology networks PNG more actively involved in the UNCCD subsidiary bodies e.g. the Committee for the review of the implementation of the convention and the committee on science and technology.	4 <sup>th</sup> NC to the UNCCD.  Annual reports of government agencies, national institutions and NGOs.  UNCCD CRIC reports.	Timely distribution of information on science and technology networks and officers having the time to actively participate in the networks.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Promote and establish as ongoing lead agency function the dissemination of information on international, regional and national science and technology networks.	DEC	UNDP, Universities, PNGFA, FRI, DAL, NARI, DNPM, Donors	2010
Participate actively in UNCCD meetings and processes.	DEC	UPNG, PNGFA, DAL, DLPP, DPLLG, National Planning	2010-2012

**Table 55: UNCCD Environmental objective 3**

Productivity of land resources in PNG is maintained and improved and supporting the resilience of ecosystems, livelihoods of communities and overall economic growth. Resilience of ecosystems, land production systems and people of PNG strengthened to mitigate and adapt to the effects of climate change.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of government to coordinate the elaboration and implementation of the NAP strengthened.	AP coordination mechanism in place and meeting at least twice a year to plan and monitor development and implementation of the NAP.	4 <sup>th</sup> NC to the UNCCD.  Annual reports of government agencies, national institutions and NGOs.	Stakeholder representatives have time to commit to participating in the NAP coordination process.
Actions	Lead agency	Suggested Priority Partners	Duration
Conduct training and awareness activities for officers in DEC and partner organizations on roles in; implementation of the NAP, UNCCD reporting process and how to promote and facilitate the mainstreaming of the NAP into their provincial government, sector programs and organizational work plans.	DEC	Universities, PNGFA, FRI, DAL, DPLLG, NARI, DNPM, Donors, NGOs	2010
Strengthen communication and linkages between national, provincial and local level government agencies on planning and implementation of the NAP.	DEC	UPNG, Universities, PNGFA, FRI, DAL, DPLLG, NARI, DNPM, Donors, NGOs	2011

**Table 56: UNCCD Environmental objective 4**

Productivity of land resources in PNG is maintained and improved and supporting the resilience of ecosystems, livelihoods of communities and overall economic growth. Resilience of ecosystems, land production systems and people of PNG strengthened to mitigate and adapt to the effects of climate change.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of government and partners to ensure systematic observation of land degradation in affected areas and to understand better and assess the processes and effects of drought enhanced.	NARI, FRI and NWS have adequate capacity to conduct observations, collect and analyse data and provide information and early warning advice to stakeholders on drought and effects on land resources and productivity.	4 <sup>th</sup> NC to the UNCCD.  NARI, FRI, NWS Annual Reports	Availability of donor funding.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Plan, develop funding proposal and secure funding to strengthen capacity of NARI, FRI, NWS to undertake systematic observation and provide early warning and advice on drought and its effects on land resources and rural productivity.	DEC	UNDP, NWS, DAL, NARI, PNGFA, FRI, Universities, Radio stations, Telephone service providers, Donors	2011-2012
Plan, develop proposal and secure funding to strengthen capacity of NWS to provide agro-meteorological services.	DEC	UNDP, NWS, DAL, NARI, PNGFA, FRI, UNITECH, NBC, Donors	2011-2012
Review data availability in the country; establish information management and sharing arrangements and protocols to have information on land resources more easily accessible.	DEC	UNDP, Universities, DAL, NARI PNGFA, FRI, NGOs, Donors	2010-2011

**Table 57: UNCCD Environmental objective 5**

Productivity of land resources in PNG is maintained and improved and supporting the resilience of ecosystems, livelihoods of communities and overall economic growth. Resilience of ecosystems, land production systems and people of PNG strengthened to mitigate and adapt to the effects of climate change.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of targeted institutions enhanced to develop a baseline based on the most robust data available on biophysical and socioeconomic trends.	Coordination mechanisms established and at least 4 national institutions supported financially and able to participate in developing baseline information to support implementation of the NAP and monitoring of land degradation.	4 <sup>th</sup> NC to the UNCCD.  NARI, FRI, NWS Annual Reports.	Strong collaboration amongst targeted institutions.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Mobilize resources, plan and implement capacity building activities and develop/update baseline information.	DEC	UNDP, Universities, DAL, NARI, PNGFA, FRI, DNMP, MRA, DPMGM, DNPM, Private sector, NGOs, Donors	2010-2011
Conduct awareness raising activities on baseline information developed.	DEC	UNDP, Universities, DAL, NARI, PNGFA, FRI, DNMP, MRA, DPMGM, DNPM, Private sector, NGOs, Donors	2011-2012

**Table 58: UNCCD Environmental objective 6**

Productivity of land resources in PNG is maintained and improved and supporting the resilience of ecosystems, livelihoods of communities and overall economic growth. Resilience of ecosystems, land production systems and people of PNG strengthened to mitigate and adapt to the effects of climate change.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land in affected areas is improved to develop tools to assist decision-making.	Strategies and tools developed to implement adaptation and drought mitigation measures as a result of better understanding of the interactions between climate change and land degradation.	4 <sup>th</sup> NC to the UNCCD. NARI, FRI, NWS Annual Reports.	Strong collaboration amongst targeted institutions.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
National institutions, NGOs, private sector and communities to collaborate and compile, analyse existing data to determine priority land degradation or vulnerable sites in the country.	DEC	UNDP, Universities, DAL, NARI, PNGFA, FRI, DNMP, MRA, DPMGM, DNPM, Private sector, NGOs, Donors	2010
National research, training institutions and NGOs to develop information packages on the linkages between climate change adaptation, drought mitigation and restoration of degraded lands.	DEC	UNDP, Universities, DAL, NARI, PNGFA, FRI, DNMP, MRA, DPMGM, DNPM, Private sector, NGOs, Donors	2011-2012

**Table 59: UNCCD Environmental objective 7**

Productivity of land resources in PNG is maintained and improved and supporting the resilience of ecosystems, livelihoods of communities and overall economic growth. Resilience of ecosystems, land production systems and people of PNG strengthened to mitigate and adapt to the effects of climate change.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of government and stakeholders to mobilize resources to support the implementation of the NAP strengthened.	Integrated Financing Strategy developed to support implementation of the NAP.  Mobilization of financial and technical resources to address land degradation and implement sustainable land management increased by at least 15% compared to 2009 levels.	4 <sup>th</sup> NC to the UNCCD. NARI, FRI, NWS Annual Reports.	Strong collaboration amongst targeted institutions.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Conduct training and develop an Integrated Financing Strategy to support the implementation of the NAP in PNG.	DEC	UNDP, DAL, PNGFA, Universities	2010
Conduct training on Project Management and development of project proposals.	DEC	UNDP, NGOs. DNPM, Private Sector, Training institutions	2011

**Table 60: UNCCD Environmental objective 8**

Productivity of land resources in PNG is maintained and improved and supporting the resilience of ecosystems, livelihoods of communities and overall economic growth. Resilience of ecosystems, land production systems and people of PNG strengthened to mitigate and adapt to the effects of climate change.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of government and stakeholders to develop, implement and evaluate a communication strategy to raise awareness on land degradation and linkages with climate change and biodiversity conservation is enhanced.	Desertification/land degradation and drought issues and the synergies with climate change adaptation/mitigation and biodiversity conservation are effectively communicated among key constituencies at the national and local levels.	4 <sup>th</sup> NC to the UNCCD. NARI, FRI, NWS Annual Reports.	Strong collaboration amongst targeted institutions.  Adequate funding available.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Conduct training and develop, implement and evaluate a communication strategy for the UNCCD in PNG.	DEC	UNDP, Universities, DAL, PNGFA, GPLLG, DNPM, NGOs, Print media, Radio stations, Television station, Training institutions	2010

### 7.3 The UNFCCC

**Table 61: UNFCCC Environmental objective 1**

PNG contributing effectively to reducing global Green House Gas Emissions and reducing reliance on fossil fuels			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
GHG inventories competently undertaken by national stakeholders in PNG as required by the UNFCCC.	No of officers and agencies trained, undertaking GHG inventories and providing data and reports for the 2 <sup>nd</sup> NC.	2 <sup>nd</sup> NC report to the UNFCC. GHG training reports. DEC reports.	Funding available to undertake GHG inventories.  Agencies able to release officers to undertake GHG inventories.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Expand training on GHG inventories in the private sector and sector agencies.	PMO-NEC	DEC, UNDP, UPNG, PNGNFA, NFI, NARI, NSO, Chambers	2010
Training to develop and embed system for data collection and management.	PMO-NEC	DEC, UNDP, UPNG, PNGNFA, NFI, NARI, NSO, Chambers, DEWHA, CSIRO	2010

**Table 62: UNFCCC Environmental objective 2**

PNG contributing effectively to reducing global Green House Gas Emissions and reducing reliance on fossil fuels.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of government and stakeholders to assess GHG abatement options and effectively implement them enhanced.	Mitigation measures developed in all provinces by 2015.  100 percent hydro-power and solar energy use by 2050.	2 <sup>nd</sup> NC report to the UNFCC.  Vision 2050 and government monitoring reports.	PNG Government and Annex 1 donor countries commitment to reducing green house gas emissions is backed up with adequate funding resources.  Landowners availing land for hydro electricity establishment.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Following endorsement of the Electricity Industry Policy by NEC, conduct awareness raising programs to promote the policy.	DPE	Churches, NGOs, PNG Power, PNG Sustainable Energy Ltd., PNG Sustainable Development Program, Private sector.	2010-2012
Strengthen capacity of Low Carbon Working Group to coordinate and facilitate the assessment of low carbon options.	PMO-NEC	DEC, DMPGM, DPE, MRA, Private Sector	2010

**Table 63: UNFCCC Environmental objective 3**

People and ecosystems in PNG able to adapt to the impacts of climate change and climate variability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of government, NGOs, private sector and communities plan and undertake V&A assessments enhanced.	Targeted government, NGO, Private Sector officers and community representatives in all provinces trained and carrying out V&A assessments in all development sectors by 2015.	Government reports.	Adequate resources are mobilized to implement adaptation.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Develop a menu of V&A methodologies and make available for use in training and V&A assessments.	PMO-NEC	DEC, UNDP, UPNG, PNGNFA, NFI, NARI, DMPGM	2010-2012
Design; implement training of trainers courses in V&A leading to a certified list of V&A trainers.	PMO-NEC	DEC, UNDP, UPNG, PNGNFA, NFI, NARI, DMPGM	2010-2012
Expand V&A training and assessments in all provinces and across the development sectors in PNG.	PMO-NEC	DEC, NDC, UPNG, PNGNFA, NFI, NARI, DMPGM, Donors	2010-2015
Establish database of all V&A assessments undertaken in PNG.	PMO-NEC	DEC, NDC, UPNG, PNGNFA, NFI, NARI, DMPGM, Donors	2010-2011
Conduct consultations to integrate V&A assessment into EIA methodology and process.	PMO-NEC	DEC, UNDP, UPNG, PNGNFA, NFI, NARI, DMPGM, Donors	2010-2011

**Table 64: UNFCCC Environmental objective 4**

People and ecosystems in PNG able to adapt to the impacts of climate change and climate variability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Government, institutions, NGOs, private sector and communities' implementation of adaptation options determined through V&A assessments enhanced.	Targeted government, NGO, Private Sector officers and community representatives in all provinces carrying out adaptation programs and actions in all development sectors by 2015.	Government reports.	Adequate resources are mobilized to implement adaptation programs and actions.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Raise awareness on adaptation options and promote traditional adaptation practices and knowledge.	PMO-NEC	DEC, DPLLG-NDC, Private Sector, NGO, media, DMPGM	2010-2015
Mobilize financial resources to scale up implementation of adaptation programs and actions in PNG.	PMO-NEC	DEC, UNDP, UPNG, PNGNFA, NFI, NARI, DNPM, DEC, DPLLG-NDC, DMPGM	2010-2015
Develop policy and guideline for relocation of vulnerable communities affected by climate change and variability.	PMO-NEC	DEC, Communities, Churches, NGOs, DEC, NDC, Min of Provincial Affairs, Donors	2010-2015



Compile and make available case studies and lessons learnt from adaptation actions.	PMO-NEC	DEC, UPNG, PNGNFA, NFI, NARI, NGOs, Donors	2010-2015
Guideline developed for adaptation measures to enhance resilience of ecosystems.	PMO-NEC	DEC, UPNG, PNGNFA, NFI, NARI, Donors, NGOs, DMPGM, DPLLG	2010-2012

**Table 65:** UNFCCC Environmental objective 5

People and ecosystems in PNG able to adapt to the impacts of climate change and climate variability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity for systematic observation improved compared to 2009 levels.	100 percent weather and natural disaster monitoring stations in all provinces.	2 <sup>nd</sup> NC report to the UNFCC. NWS reports.	Adequate resources are mobilized.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Secure funding to strengthen capacity of NWS including establishment of new weather stations, strengthening of data collection, analysis, management and dissemination of information to target users.	NWS	Dept of Planning, DEC, UPNG, PNGNFA, NFI, NARI, NDC, Donors,	2010-2012
Establish system and formal arrangements for NWS to obtain weather information collected by private sector, research and training institutions in PNG.	NWS	DEC, UPNG, PNGNFA, NFI, NARI, NDC, Donors	2010-2012
Develop project to enable national institutions to carry out research to determine stress points of different ecosystems.	PMO-NEC	DEC, UPNG, PNGNFA, NFI, NARI, Donors, Dept of Provincial Affairs	2010-2012

**Table 66: UNFCCC Environmental objective 6**

People and ecosystems in PNG able to adapt to the impacts of climate change and climate variability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Enabling environment established and climate change mainstreamed into national, provincial, sector and institutional plans, strategies, policies and programmes.	No of plans, policies, strategies at the national, provincial, local and institutions levels that have mainstreamed climate change.	2 <sup>nd</sup> NC report to the UNFCC. Government reports.	Adequate awareness levels to enable mainstreaming.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Raise awareness, conduct training extend climate change mainstreaming to Ministries, Departments and Provincial government, NGOs, Private Sector not yet addressed.	PMO-NEC	DEC, UPNG, PNGNFA, NFI, NARI, Donors, NGOs	2010-2015
2 <sup>nd</sup> NC to identify specific capacity needs to be addressed in future programs and/or projects.	PMO-NEC	DEC, UPNG, PNGNFA, NFI, NARI, NGOs	2010
Review laws and regulations to incorporate climate change (and aligned with the CCDP).	PMO-NEC	DEC, UNDP, UPNG, PNGNFA, NFI, NARI,	2010-2015

**Table 67: UNFCCC Environmental objective 7**

People and ecosystems in PNG able to adapt to the impacts of climate change and climate variability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Capacity of national institutions, NGOs, private sector and communities enhanced in development and transfer of technology to address climate change.	Priority technology needs assessment established, documented and strategy developed to address priority needs.	2 <sup>nd</sup> NC report to the UNFCC. Government reports.	Stakeholders actively participating and contributing to the technology needs assessment under the SNC project.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Undertake Technology Needs Assessment under the 2 <sup>nd</sup> NC and link to the work of the Low Carbon Working Group and the CCDP.	PMO-NEC	DEC, UNDP, UPNG, PNGNFA, NFI, NARI, NGOs, Private Sector, Chambers	2010
Develop strategy and prioritize actions to address priority technology needs.	PMO-NEC	DEC, PNGNFA, NFI, NARI, Training institutions, Private Sector, Chambers of Commerce, NGOs	2010-2012

**Table 68: UNFCCC Environmental objective 8**

People and ecosystems in PNG able to adapt to the impacts of climate change and climate variability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Expand and enhance education, training and public awareness activities in the implementation of the UNFCCC and Copenhagen Accord.	No of education, training and public awareness activities carried out and evaluation and reviews indicating an increased level of awareness and understanding on climate change issues.	2 <sup>nd</sup> NC report to the UNFCC.  Government reports.  Survey and review reports.	Adequate funding available for government and stakeholders.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Develop a training module on climate change.	PMO-NEC	DEC, UNDP, Training institutions, PNGNFA, NFI, NARI, SPREP	2010-2012
Provide on-going training for media personnel on targeted climate change topics and issues.	PMO-NEC	DEC, UNDP, Training institutions, PNGNFA, NFI, NARI, NGOs, SPREP	2010-2012
Conduct training and support the development of a communication strategy for climate change.	PMO-NEC	DEC, UNDP, Training institutions, PNGNFA, NFI, NARI, NGOs, SPREP	2010-2012

**Table 69: UNFCCC Environmental objective 9**

People and ecosystems in PNG able to adapt to the impacts of climate change and climate variability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Strengthen information and networking, including the establishment of databases and the acquisition of information and communication technologies.	Databases established containing information on climate change in PNG and system established for management of data and information.	2 <sup>nd</sup> NC report to the UNFCC.  Government and NGO annual reports	Adequate funding available for government and stakeholders.  Stakeholders willing to share information.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Increase use of web-sites to promote climate change and mitigation and adaptation programs and initiatives in the country.	PMO-NEC	DEC, UNDP, Training institutions, PNGNFA, NFI, NARI, NGOs	2010-2015
Promote sharing of information amongst stakeholders and establish policy and/or protocols for information sharing.	PMO-NEC	DEC, UNDP, Training Institutions, PNGNFA, NFI, NARI, SPREP, Private Sector, NGOs	2010-2011

**Table 70: UNFCCC Environmental objective 10**

People and ecosystems in PNG able to adapt to the impacts of climate change and climate variability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
Financial mechanisms to support policies, strategies and plans to address climate change are established and coordinated.	PMO-NEC	2 <sup>nd</sup> NC report to the UNFCC. Government and NGO annual reports	Adequate funding available for government and stakeholders.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Prioritizing mechanism established to support strategic allocation of donor funds to address climate change.	PMO-NEC	Department of Treasury, Department of Finance, DEC, UNDP, Universities, PNGNFA, NFI, NARI,	2010-2011
Conduct consultations and develop governance and financial management guide and arrangements for REDD+ at the national, provincial and community levels.	PMO-NEC	Department of Treasury, Department of Finance, DEC, UNDP, Universities, PNGNFA, NFI, NARI, DPLLG, CDC	2010-2011

**Table 71: UNFCC Environmental objective 11**

People and ecosystems in PNG able to adapt to the impacts of climate change and climate variability.			
Capacity Output	Measurable Indicators	Means of Verification	Assumptions
PNG government, stakeholders and communities capacity to plan and implement and manage a national REDD+ program and strategy enhanced	REDD+ program and strategy developed and implemented involving the effective participation and ownership by targeted stakeholders.	2 <sup>nd</sup> NC report to the UNFCC. Government and NGO annual reports	Adequate funding available for government and stakeholders.
Proposed Actions	Lead Agency	Suggested Priority Partners	Duration
Conduct awareness raising and training for government officials, public and resource owners on climate change and REDD+.	PMO-NEC	DEC, UNDP, Universities, PNGFA, NFI, NARI, NSO, Private sector, NGOs	2010-2011
Develop and implement monitoring, evaluation and verification methodologies.	PMO-NEC	DEC, UNDP, Universities, PNGFA, NFI, NARI, NSO, NGOs, Private Sector	2010-2015
Conduct training and awareness for targeted stakeholders particularly communities on the REDD+ financial mechanism and ABS arrangements.	PMO-NEC	DEC, UNDP, Universities, PNGFA, NFI, NARI, NSO, NGOs, Private Sector	2010-2015

## 8. CONCLUSION

The approach taken with this NCSA has focused on the enabling environment (policies, strategies, coordination arrangements, etc.) and key institutions whose role is to coordinate implementation of the targeted conventions. The report also highlights the recurring capacity issues, identifying main implementation gaps and capacity needs, and presents a strategy for addressing priority capacity gaps and needs that will ensure on-going coordinated implementation of the Rio Conventions.

During the course of the NCSA, it has been determined, that much has already been documented about the environmental and sustainable development challenges in PNG. Endless lists of recommendations have been proffered, many of which are still pertinent and their implementation by government long overdue.

Some issues identified in this report and also previous assessments, can be practically addressed within a short to medium period through improved institutional arrangements and enhanced strategic and day-to-day leadership; while others such as the need to strengthen good governance, transparency and accountability are more complex and need to be addressed in the context of a broader and longer term reform programs that is also sensitive to cultural contexts.

A summary NBSAP was launched in 2007 and is currently under review. Its implementation has been very slow and roles, responsibilities and formal coordination arrangements still need to be defined and strengthened. The NAP is currently being developed with GEF support under the SLM project and should be completed during 2010. This will also need to clearly define roles and responsibilities and coordination arrangements. The 2<sup>nd</sup>NC to the UNFCCC is currently being conducted, though PNG is yet to formalize a climate change policy and develop a national adaptation strategy, though as mentioned above, the CCDP is currently being formulated.

The focal institution responsible for coordination of the Rio Conventions is the DEC with the Secretary as the Operational Focal Point. The role of the political focal point is vested with the Department of Foreign Affairs and Trade. The responsibility of government officers to coordinate, monitor and report on progress in implementation of the Rio Conventions can be regarded as 'informal' as they are not clearly established in a particular officer's job descriptions and annual performance targets. This has contributed to the relatively low profile of the Rio Conventions in the work of government. There is also no clear responsibility and accountability on the part of NGOs or the private sector to report to the government on activities that could be seen to support various convention provisions. The report recommends how this can be improved.

Despite the slow progress in complying with the Rio Convention and developing the NBSAP, NAP and climate change policies, PNG continues to implement many initiatives that support various Articles and the decisions and recommendations of the Rio Convention CoPs and its subsidiary bodies. These include *inter-alia* establishment of national policies and legislation, institutional coordination arrangements, strengthening the role of science, research and technology development to support environmental management, supporting communities and families address livelihoods and sustainable development challenges, education and awareness and developing human resource capacity. These currently remain uncoordinated and not closely linked to national targets and MDGs.

The NCSA Global Support Unit's 2006 review of NCSA projects across the developing world has found that many countries do not link capacity development with substantive targeted environmental outcomes. During the NCSA it was difficult to align capacity development with environmental and/or conservation targets mainly because these are absent in the NBSAP and still need to be developed in the NAP and climate change strategy. The very limited information on baselines, targets and indicators has also made it very difficult for the MDG7 Committee to report on progress. In line with the spirit and intent of Vision 2050, the NCSA capacity development strategy should place special attention on the need to develop capacity to have in place very good MEA oriented national strategies informed, realistic baseline information and strategic and measurable environmental outcomes and indicators. While the NCSA focuses on the Rio Conventions, DEC can use the capacity development strategy recommended in this report to strengthen overall MEA coordination and implementation in the country.

Donors have an important role to play in supporting the implementation of MEAs in PNG. Following the completion of the NAP and climate change strategy, and the review of the NBSAP, there is need for DEC to facilitate the development of a resource mobilization strategy for implementation of the CDS listed in Section of this report. PNG is a member of a number of Pacific regional inter-governmental organizations that also have the expertise to provide support for MEA implementation. These inter-governmental organizations can also assist PNG in implementing their MEAs.

PNG needs to make better use of the GEF as the leading global financing mechanism to support the implementation of the Rio Conventions. The next GEF 5 funding cycle begins in June 2010, and PNG could expect to receive a total of USD 16 million. As the GEF Operational Focal Point, DEC will need to facilitate a consultative process to ensure that the PNG GEF 5 program is strategically targeted at addressing the CDS and the priority components and actions under the NBSAP, NAP and forthcoming climate change strategies.

Capacity development does not take place in a vacuum. Experiences with capacity development in both the developed and developing world over the past years repeatedly demonstrate very clearly that capacity development can be successful and sustained when driven and supported by strong strategic and accountable leadership by individuals at all levels of society and by strong institutions. Furthermore, it is essential that there exists a supporting enabling environment of policies, legislation, strategies and coordinating mechanisms guided by good governance principles.

The NCSA has found that greater commitment and effort is needed to promote the linkages between the Rio Conventions, their national implementation strategies and other sectoral strategies and the needs and aspirations of rural communities. Many national leaders and stakeholders are still not aware of PNG's obligations to the Rio Conventions and are not able to relate to these obligations in their institutional mandates, community objectives and work plans.

An important starting point is the review and strengthening of the NBSAP, development of the NAP, a national climate change adaptation and mitigation strategy including a national REDD+ framework, and strengthening co-management and inter-ministerial coordination arrangements.

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## Appendix B: Multi-lateral Environment Agreements ‘signed’ or ‘ratified’ by PNG

<b>List of Agreements where PNG's Current Status is as a 'Signatory'</b>
ACP-EEC Conventions (Lome, 1984; and Lome, 1989)
Comprehensive Nuclear Test-Ban Treaty (New York, 1996)
Convention on Conservation of Nature in the South Pacific (Apia, 1976)
Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto, 1997)
<b>List of Agreements where PNG's Current Status is as a 'Party'</b>
Agreement establishing the South Pacific Commission (Canberra, 1947; and Amendments, Noumea, 1951 and London, 1964)
Agreement establishing the Asian Development Bank (Manila, 1965)
Agreement establishing the South Pacific Regional Environment Program (Apia, 1993)
Agreement establishing a Regional Animal Production and Health Commission for Asia and the Pacific
Agreement of the International Bank for Reconstruction and Development (Bretton Woods, 1944)
Agreement of the International Monetary Fund (Bretton Woods, 1944)
Agreement on the Rescue of Astronauts and the Return of Objects launched into Outer Space (Washington, 1968)
Articles of Agreement of the International Development Association (Washington, 1960)
Charter of the United Nations (San Francisco, 1945)
Constitution of the Food and Agriculture Organization of the United Nations (Quebec, 1945)
Constitution of the International Labour Organisation (Versailles, 1919)
Constitution of the United Nations Educational Scientific and Cultural Organization (London, 1945)
Constitution of the United Nations Industrial Development Organization (Vienna, 1979)
Constitution of the World Health Organization (New York, 1946)
Convention concerning the Protection of the World Cultural and Natural Heritage (Paris, 1972)
Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (Noumea, 1986)
Convention for the Protection of the Ozone Layer (Vienna, 1985)
Convention of the World Meteorological Organization (Washington, 1947)
Convention on International Civil Aviation Annex 16 - Aircraft Noise (Chicago, 1944)
Convention on International Liability for Damage caused by Space Objects (Washington, 1972)
Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington, 1973; and Amendments to Article XI, Bonn, 1979)
Convention on Persistent Organic Pollutants (Stockholm, 2001)
Convention on Road Traffic (Geneva, 1949)
Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 1971; and Amendments, Paris, 1982)
Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel, 1989)
Convention on the International Maritime Organization (Geneva, 1948)
Convention on the International Regulations for Preventing Collisions at Sea (London, 1972)
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (Washington, 1972; and Amendments, Torremolinos, 1978 and Colombo, 1980)

<b>List of Agreements where PNG's Current Status is as a 'Party' continued</b>
Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques (Geneva, 1976)
Convention on the Prohibition of the Development Production and Stockpiling of Bacteriological ( Biological ) and Toxin Weapons and on their Destruction (Washington, 1972)
Convention on the Prohibition of the Development Production and their Destruction (Paris, 1993)
Convention to ban the Importation into Forum Island Countries of Hazardous Wastes and Radioactive Wastes and to control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific (Waigani, 1995)
International Convention for the Prevention of Pollution from Ships Hazardous Substances (London, 1978; and Amendments on Sewage and Garbage)
International Convention for the Safety of Life at Sea ( SOLAS ) (London, 1974)
International Convention on Civil Liability for Oil Pollution Damage (Brussels, 1969; and Amendments, Brussels, 1992)
International Convention on Standards of Training Certification and Watchkeeping for Seafarers (London, 1978)
International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (Brussels, 1969)
International Convention relating to the Limitation of the Liability of Owners of Sea-going Ships (Brussels, 1957)
International Plant Protection Convention (Rome, 1951; and Revised Texts, Rome, 1979 and Rome, 1997)
International Tropical Timber Agreement (Geneva, 1983; and Amendments, Geneva, 1984)
Plant Protection Agreement for the Asia and Pacific Region (Rome, 1956; and Amendments, Rome, 1967)
Protocol concerning Co-operation in Combating Pollution Emergencies in the South Pacific Region (Nouméa, 1986)
Protocol for the Prevention of Pollution of the South Pacific Region by Dumping (Noumea, 1986)
Protocol for the Prohibition of the Use in War of Asphyxiating Bacteriological Methods of Warfare (Geneva, 1925)
Protocol on Substances that Deplete the Ozone Layer (Montreal, 1987; and Amendments, London, 1990)
South Pacific Fisheries Treaty (Port Moresby, 1987)
South Pacific Forum Fisheries Agency Convention (Honiara, 1979)
The Antarctic Treaty (Washington, 1959)
The South Pacific Nuclear Free Zone Treaty (Rarotonga, 1985)
Treaty Banning Nuclear Weapon Tests in the Atmosphere Outer Space and under Water (Washington, 1963)
Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, the Moon and other Celestial Bodies (London, 1967)
Treaty on the Non-Proliferation of Nuclear Weapons (Washington, 1968)
Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Sub-soil thereof (Washington, 1971)
United Nations Convention on the Law of the Sea (Montego Bay, 1982; and Agreements relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 1995; and implementing Part XI, New York, 1994)
United Nations Framework Convention on Climate Change (New York, 1992)
United Nations Convention on Biological Diversity (Rio de Janeiro, 1992)
United Nations Convention on Combating Desertification (Rio de Janeiro, 1992)
<b>List of Agreements where PNG's Current Status is as a 'Former Party'</b>
International Convention for the Prevention of Pollution of the Sea by Oil 1962 and 1969 (London, 1954 )
International Convention for the Safety of Life at Sea (London, 1960 )