

Papua New Guinea  
National Assessment Report  
BPOA + 10, Mauritius 2005

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## **Foreword by the Minister for Environment & Conservation, Hon. William Duma, LLB MP**

The preparation of Papua New Guinea's National Assessment Report on the Implementation of the Barbados Programme of Action (BPoA) for the Sustainable Development of Small Island Developing States (SIDS) is part of an international exercise to undertake a comprehensive review of the implementation of the BPoA in SIDS since its adoption in 1994. The purpose of the review exercise is threefold:

- (a) The review exercise provides an opportunity for SIDS countries, including Papua New Guinea, to look at the progresses and achievements made in the implementation of the BPoA commitments;
- (b) The review process enables SIDS countries to identify problems and constraints in the implementation of the BPoA commitments; and
- (c) It also provides an opportunity for SIDS countries to determine appropriate measures and actions to overcome the problems and constraints for effective implementation of the BPoA.

As a member of the family of SIDS countries, Papua New Guinea's preparation of its National Assessment Report for the comprehensive review of the BPoA is a testament to its unwavering commitment and resolve to implement the BPoA commitments in the country. Consistent with the purposes of the review process, the National Assessment attempts to reflect on the achievements Papua New Guinea had made in the implementation of the BPoA. It also notes the problems and constraints and suggests measures and actions to overcome those impediments.

While the SIDS, including Papua New Guinea, are required to take concrete national actions to implement the BPoA, the developed countries have equally accepted the responsibility to assist the SIDS with financial, technical and other necessary resources to implement the Programme.

In this context, the National Assessment Report draws the importance of international assistance and support to strengthen Papua New Guinea's effort to implement the BPoA commitments.

Finally, I trust that the National Assessment Report will serve as a benchmark to improve and further enhance Papua New Guinea's implementation of the BPoA. I am also confident that the National Assessment Report will serve its collective utility in the global review process of the BPoA.

**(Signature)**

**Hon. Mr William Duma LLB, MP  
Minister for Environment & Conservation**

## **Introduction**

The Papua New Guinea's (PNG's) National Assessment Report (NAR) on the Implementation of the Barbados Programme of Action (BPoA) for the Sustainable Development of Small Island States (SIDS) reflects the country's implementation of the BPoA commitments. Part IV of the NAR notes the progresses made in pursuing the BPoA commitments and also identifies certain problems and constraints that affected its effective implementation in the country. Further, attempts have been made to identify possible actions and measures to overcome the impediments that stand in the way of implementing the BPoA.

The implementation of the BPoA can not be isolated from the economic and social development issues, given the inter-linkages and mutually reinforcing nature of these three pillars of sustainable development. In this context, Part V of the NAR highlights certain important social and economic issues and challenges facing the country. This includes issues, such as trade and investment; poverty eradication; education; reduction of child mortality; gender equality and empowerment of women; and health issues: malaria and other diseases and HIV/AIDS. Attempts have also been made to identify certain measures and actions that PNG can take to address those important social and economic issues.

Part V also reflects on certain cross-cutting issues, such as good governance, capacity-building and cooperation, law and order and security issues, financial resources, awareness and communications, enabling environment at the national level; as well as other factors that affect PNG's implementation of sustainable development, including the BPoA.. Certain measures and actions that PNG can take to effectively address these issues had also been identified.

In order put into proper context of the issues and challenges facing the country, Part I indicates certain general information about the country. This includes information on the geography of the country, demography/population, climate and weather, the country's natural resources, and a brief overview of the social and economic developments of the country.

Part II deliberates on three important development challenges facing the country. These are the law and order, urbanizations and unemployment issues. These are should also be served as precursor to related issues deliberated in Part IV and moreso for development challenges and issues articulated in Part V.

Part III was devoted to national framework for sustainable development, which an important element of the infrastructural basis for the country's implementation of sustainable development, including the BPoA. It provides a brief account of established mechanisms and the current approach towards addressing sustainable development in the country.

## Background

The United Nations Conference on the Sustainable Development of Small Islands States, held in Barbados from 25 April to 6 May 1994 adopted the BPoA for the Sustainable Development of Small Islands Developing States (SIDS). The BPoA constitutes specific actions and measures to be taken at the national, regional, and international levels in support for sustainable development in SIDS. The adoption of the BPoA was a concrete step forward in an effort to implement the Rio Declaration, Agenda 21, and other outcomes of the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil, in June 1992.

The BPoA constitutes 15 priorities areas of critical importance to SIDS, including climate change and sea level rise; natural and environmental disasters; management of wastes; coastal and marine resources; freshwater resources; land resources; energy resources; tourism resources; and biodiversity resources.

The United Nations General Assembly, at its 22nd Special Session in September 1999, devoted two days to review the implementation of the BPoA in SIDS. This Special Session revealed that despite the efforts of SIDS, the international community, especially the developed countries and the donor community have not yet fulfilled their commitments in supporting the SIDS with financial, technical and other resources to implement the BPoA. In light of this, the General Assembly called for the international community to support the SIDS in their efforts to implement BPoA commitments.

The World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa, in 2002, reaffirmed the special case of SIDS and highlighted a series of SIDS-specific issues and concerns in the Johannesburg Plan of Implementation (JPol), adopted at the Summit. In follow-up to the WSSD, the General Assembly adopted Resolution A/57/262, which called for, inter alia, a comprehensive review of the BPoA at an international meeting to be held in Mauritius in 2004. The objective of the International Meeting is to secure renewed political commitment by all countries, by focusing on practical and pragmatic actions for the further implementation of the BPoA through the mobilization of resources and assistance for SIDS.

The review of the BPoA at the international meeting in Mauritius will be based on the NARs of SIDS' implementation of the BPoA, since its adoption 10 years ago. Hence, the PNG's NAR is part of this important international review process to further enhance the implementation of the BPoA in SIDS.

## Acknowledgements

Pursuant to Foreign Minister and Secretary Pepson's instruction, the Permanent Mission of Papua New Guinea to the United Nations in New York, USA is pleased to compile this National Assessment Report of PNG's implementation of the Barbados Programme of Action for the Sustainable development of Small Islands Developing States.

The Second Secretary of the Mission, Mr Sakias Tameo, had been charged to undertake this important task. It has been made possible with the funding assistance of UNDP for which the Permanent Mission is so grateful.

The Permanent Mission acknowledges with appreciation the kind contributions and inputs of the following representatives of Departments and Agencies:

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## List of Abbreviations and acronyms (To be completed)

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## **Part I : National circumstances**

### **1. Geography**

PNG is the largest country of the Pacific region (excluding Australia and New Zealand), with a land area totaling 461, 690 square kilometers. Its maritime jurisdictional zone is in excess of 2 million square kilometers.

PNG shares land boundary with West Papua Province of Indonesia to the West. It shares sea boundaries with Australia to the South, Solomon Islands to the East, and Federated States of Micronesia to the North.

The country sits on a geographically complex region, where forces of three tectonic plates (Australian, Pacific and Solomon) come into play, which have contributed to the Papua New Guinea's rich terrestrial and marine biodiversity.

The mainland has rugged terrains, which have led to the relative isolation of many ethnic groups. In the Highlands region, the terrain is extremely rugged with sharp mountain ranges and steep valleys with fast flowing rivers. The coastal areas often have extensive swamps and treacherous coral reefs.

There are approximately 600 small islands, which are widely dispersed. The main islands are: New Britain, Bougainville, New Ireland and Manus. Many of the smaller islands are low-lying coral atolls.

Tropical rain forest and woodlands cover about 70 per cent of the country's total land area and permanent cropland constitutes about 1 per cent.

Port Moresby, the country's capital is located on the Southwest coast of the Mainland.

### **2. Historical overview**

The original inhabitants of PNG arrived about 40-50, 000 years ago and successive waves of immigration took place over the following 15, 000 years. Archaeological evidence show that some 9, 000 years ago, the people began to settle and practiced agriculture.

European missionaries and traders began to settle on the islands of New Guinea in the mid-1800s, mostly in accessible coastal areas. Europeans initially thought that the inland, especially the highlands region were inhospitable for human habitation and did not explore the region until the 1930s. When European explorers reached the Highlands in search of gold, they unexpectedly encountered over 1 million people whose cultures had not been

previously exposed to western civilization.

The colonization process took place in PNG in 1884 when Germany claimed sovereignty over the northern part of the country, and 4 years later the British claimed the southern part and governed them as two separate colonies: German New Guinea and British Papua.

At the end of the First World War in 1919, Australia took over the administration of both colonies as the Trust Territories of Papua and New Guinea. Australia continued its administration until 1973 when the two territories became united and gained self-government.

In 1975, PNG gained its political independence from Australia.

### **3. Demography/Population**

PNG has a total population of 5.19 million people. About 87 per cent of the people live in rural areas and outer islands and 13 per cent live in urban areas.

The population growth rate is extremely high, with a 3.5 per cent per annum. Other important demographic indicators are as follows: life expectancy of 53.5 years for men and 54.6 years for women. The infant mortality rate per 1000 births is 73. The urban population growth rate per annum is 2.2 per cent.

In the rural areas, much of the economic activities are subsistence and cash agriculture. Most farmers operate in the informal subsistence sector on customary owned land. Common crops are sweet potatoes, sago, yams, bananas, and cash crops are coffee, palm oil, cocoa, copra, rubber, and tea.

The people are extremely diverse ethnically, speaking well over 800 different languages and has 250 different cultures. These can be attributable to the difficult terrain of the country that has given rise to the developments of the many, diverse ethnic groups and multifaceted cultural communities. The remoteness of communities in the rugged terrains was underlined by the discovery in 1984 of a tribe, living in the depths of the jungle, which had not come in contact with western civilization.

The Official language is English.

The country's population falls into four regions: Momase, Papua, New Guinea Islands, and the Highlands. The people are predominantly Melanesians with a minority Polynesian and other Groups.

#### **4. Climate and weather**

PNG's climate is tropical and monsoonal, with a high average rainfall of 2000 millimeters a year, but does not conform to any standard equatorial type, largely because of the effects of the mountain ranges. There are distinct wet and dry seasons, which vary from place to place due to the nature of the terrain, but the most common wet season is between November and April with the dry season between May and October.

The temperatures remain fairly constant throughout the year in most parts of the country. The annual day time mean temperature in most of the lowland areas is 27 degrees Celsius with very high humidity, although the capital of Port Moresby is warmer and drier with about 1,230-0 millimeters of rain a year, as it lies in the rain shadow of the Owen Stanley Ranges.

Temperatures in the highlands are significantly lower, and in the highland valleys the annual daytime mean temperatures is 20 degrees Celsius with moderate humidity.

Drought and frosts are generally common occurrences in the highlands region that have significant impact on the economic and environmental sectors. The influence of the El Nino Southern Oscillation is the contributing factor to the development of frost and droughts in the country.

PNG is one of the cloudiest places in the world, averaging from half to three quarters cloud cover throughout the year. Relative humidity is uniformly high, about 75-90 per cent.

#### **5. Government and administration**

PNG is an independent parliamentary democracy within the Commonwealth of Nations. It has a unicameral legislature based upon the Westminster (i.e British) model. The Head of State is Queen Elizabeth II, who is represented by the Governor-General nominated by the National Parliament for a six-year term.

The National Parliament is a single house consisting of 109 members who are elected every 5 years. Under a recent Parliamentary reform and constitutional amendment, the Governor-General can ask the political party with the majority of elected members, after a general election, to form the Government. The leader of the political party can become the Prime Minister.

The Prime Minister appoints the Cabinet Ministers, referred to as the National Executive Council, which is responsible, in accordance with the National Constitution, for the executive government of the country.

The Constitution of PNG provides for three branches of government, namely the Executive, Legislative and the Judiciary. The National Government shares power with the nineteen (19) Provincial Governments.

The legislative assembly in each province is headed by a Governor who is elected to represent the province in the National Parliament. The provincial governments are devolved with powers to make laws on decentralized functions, such as primary and secondary education, rural health community, urban and rural development, agriculture and fisheries, transportation and facilities and a limited range of taxes.

The administration of the provinces are headed by Provincial Administrators, who are charged with the responsibility to oversee the delivery of government services in the provinces. They are supported by District Administrators at the district level.

The national government is responsible for macroeconomic management and other national functions, such as police, defense, foreign relations, trade, and higher education.

## **6. Natural resources**

PNG is one of the resource-rich countries in the world and has the potential to become a very prosperous and developed country. The country's resource endowment includes the rich mineral deposits, agricultural resources, forests, fisheries, biodiversity, and renewable energy sources. PNG alone harbors 5-7% of the world's rich biological diversity.

### **Mineral resources**

The country has been blessed with rich mineral resources, such as gold, copper, cobalt, zinc, gas and oil. The extraction of the mineral resources constitutes a significant portion of the country's export earnings. Currently, it accounts for 60% of exports. The Bougainville Copper mine supported the country's economy until the early 1990s when the Bougainville crisis disrupted its operation.

Other mining operations include the Ok Tedi Gold Mine, Misima Gold and Silver Mine, Lihir Gold Mine, Porgera Gold Mine, Tolukuma Gold Mine, Hides Gas Project, and Kutubu Oil Project. Some of the mines will close down in the next few years, and these would include the Ok Tedi, Porgera, Misima and Lihir mines.

Other mineral deposits have also been found, which could also come into operation if they are economically viable. Such deposits include, inter alia, the gold deposits in Mt Kare, Kainantu, Wau, Hidden Valley, Fridder Valley, and the Ramu cobalt and zinc deposits.

## **Agriculture resources**

Agriculture sustains the livelihood of more than 85 percent of the population and also contributes significantly to its economy. Agricultural products account for approximately 30 per cent of GDP and around 13 per cent of total export earnings. Some of the major agricultural exports include copra, coffee, cocoa, rubber and palm oil. Currently, vanilla growing and exports seem to take stronghold in the coastal areas of the country, especially in the East Sepik Province.

## **Forestry resources**

Regarding forest resources, PNG, with 46.8 million hectares, has the second largest forest area in the Western Pacific, after Indonesia's 190 million hectares. It is the home of about 5-7% of the world's biological diversity.

Five main forest types dominate the country's landscape: lowland plains, lowland hills, lower montane forests, dry evergreen, and swamp forests. Many species make up the lowland rain forest types in the country and they contribute the major percentage of the commercial timber species, both for the domestic and export markets. Within these complex types of forests exist many valuable timbers with premium characteristics that are unique to PNG. Of the 200 currently extracted commercial species in the country, 10 of them are well known on world markets.

Of the many commercial timbers harvested in PNG, there is a growing demand on export markets for the premium furniture and cabinet timbers, such as rosewood, kwila, walnut, pencil cedar, taun, bintangor, malas, and hopea.

Commercial logging for exports is fairly widespread throughout the coastal areas of the country. Approximately 15 million hectares of the forests are accessible with 1 million hectares already logged. It was forecasted that from 2000 onwards, the volume of log exports would increase to around 1.8 to 2 million cubic meters.

Log exports from private companies exceed 1.3 million cubic meters plus some sawn wood and woodchips in 1990, with a combined value of K83 million.

Agreements between loggers and landowners typically require the loggers to pay royalty to land owners and build infrastructure, such as roads, schools and rural health clinics. However, there is a need for careful application and monitoring of a wide range of legislation and policy as their operations can threaten the livelihoods of the rural residents through loss of well developed road systems, causing soil erosion, contaminating water supplies and loss of non-timber resources, and other associated social problems.

## **Fisheries and marine resources**

PNG is endowed with rich fisheries and marine resources that sustain both the livelihoods of the people and also its economy. The fisheries sector covers commercial, artisanal, subsistence and recreational fisheries. The largest fishery in PNG is the tuna fishery. The other significant sectors are the shrimp, beche-de-mer, lobster, trochus (shell) and reef fish. There are also potential for inland river fisheries and aquaculture. The country's fisheries may be relatively unexploited compared to other neighboring countries but pressure from commercial and subsistence farming is increasing and the sustainable management of the fisheries resources is now a priority issue.

PNG has a fisheries zone of 2.4 million square kilometers and is one of the largest in the South Pacific. The fisheries zone includes an extended reef system, numerous islands and an extensive coastline. The vast area provides opportunities in terms of resources but also present an enormous challenge in terms of monitoring, control and surveillance.

## **Renewable energy sources**

PNG is heavily dependent on imported fuels for domestic consumption. However, the country has enormous renewable energy sources, such as solar energy, hydroelectricity, biomass, and wind energy. Significant progress in the utilization of these renewable sources is clearly evident in the hydroelectricity sectors. For instance, the Yonki Hydroelectricity in Kainantu, Eastern Highlands Province, is generating electricity to the towns and villages along the Highlands Highway. Given that Papua New Guinea has many fast running rivers, there is huge potential to establish similar projects in other parts of the country.

Also, the country has huge potential to generate energy from the above renewable energy sources. However, this will very much depend on factors, such as availability of cheaper and affordable renewable energy technologies.

## **7. Economic development**

The economy of PNG is dominated by a resource sector that generates the majority of the country's export earnings and by a subsistence and cash sector. While the mining and petroleum sector has a major impact on the economy and accounted for approximately 23% of Gross Domestic Product (GDP) in 1998, approximately 85 percent of the people rely on agriculture for subsistence and cash. The agriculture, forestry and fisheries sector accounted for approximately 27% of GDP in 1998.

In the country's first decade of independence, PNG developed a sound track record of GDP growth and macroeconomic management. Coupled with this, there was much optimism due to the coming into operation of world class Ok Tedi and Porgera mines as well as other relatively small-scale mines, such as the Lihir, and Misima gold mines.

However, in the early 1990's the country underwent severe economic difficulties due to a number of factors, such as the Government's inappropriate policy regimes and expenditure programmes. Further, the country was plagued with a series of crisis, such as the severe drought of the mid-1997 and early 1998, which not only affected subsistence and cash agriculture but also interrupted production at the Ok Tedi and Porgera mines; the 1998 Asian economic crisis and falling commodity prices; the closure of the Paguna copper mine in 1989; the Rabaul volcanic eruption in 1994, and so many other numerous natural and environmental disasters.

The country has not recovered from the impact of these difficult economic times. In fact, all indications show that the PNG's economic performance deteriorated further with real GDP declining by 1.2% in 2000 and by 3.4 % in 2001, as reflected in Table 1. Over this period, real non-mining GDP declined by 0.5% and 4.2% respectively.

**Table 1: Economic indicators for years 1992 to 2001**

	Year									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Real GDP (Kina) <sup>a</sup>	2931.5	3465.1	3671	3549.4	3823.9	3674.6	3536.1	3803.5	3774.3	3649.2 <sup>bb</sup>
Real GDP (US\$) <sup>a</sup>	2968.7	3530.9	3114.8	2678	2888.2	2561.6	1717.1	1491.7	1367.4	1086 <sup>b</sup>
Real GDP Growth (%)	13.8	18.2	5.9	-3.3	7.7	-3.9	-3.8	7.6	-0.8	3.3 <sup>b</sup>
Real GDP per capita (US\$) <sup>a</sup>	770	883	751	622	647	553	357	299	264	202 <sup>b</sup>
Employment growth (%)	3.2	-2.8	7.3	-4.7	7.5	-0.2	-2.3	2.6	1.5	-6.1
Inflation (%)	4.3	5	2.9	17.3	11.6	4.6	13.6	14.9	15.6	9.3
Interest Rate <sup>c</sup> (%)	6.5	6	10.8	21.5	9.19	14.5	23.9	20.4	14.9	10.2
International reserves (US\$) <sup>a</sup>	247	141	95	270	596	465	190	138	330	481
Import cover	3.2	1.6	1.0	2.6	4.8	3.8	2.1	2.4	4.0	6.1
Public debt	1969.5	2364.1	2512.6	2508.1	2855.6	3079.8	2514.2	2288.2	2036.7	2112.2

(US\$)a										
Exchange rate (US\$)	1.0127	1.019	0.8485	1.0927	0.7553	0.6971	0.4856	0.3922	0.3623	0.2976
Exchange rate (Aus\$)	1.4708	1.5077	1.0927	1.0176	0.9653	0.9365	0.7708	0.6086	0.6256	0.5476

a The monetary values in millions. b Estimate. C 182 day treasury bill rate

Source: Draft National Assessment Report for the World Summit on Sustainable Development

Overall, real GDP is projected to have declined by a further 0.5% in 2002 although the real non-mining GDP was projected to have increased by 2.4%. Nevertheless, based on the 2003 budget forecast, real GDP is projected to grow by a modest 1.8% in 2003 while the real non-mining GDP was projected to grow by 1.6%. This could be achieved under the current Government's policy agenda "Recovery and Development", which focuses on good governance, export-driven economic growth, and rural development, poverty reduction and human resource development

## 8. Social Development

PNG had put in place policies and strategies to improve the provision of social services, especially in the health and education sub sectors. Programmes are being implemented to improve maternal child health; sexual health; improve pharmaceutical and medical supplies; institutional strengthening to improve literacy, increase retention rates of children in primary school education, increase female ratio for further education; increased focus on poverty reduction; and efforts to improve the living standard of the people, particularly in the rural areas.

There is minimal participation by the general population in the development process are due to lack of human resource skills. Also, lack of the basic services and infrastructure and unhygienic and unhealthy environments, coupled with lack of empowerment and the unequal distribution of resources and poor accessibility increases the poverty level of the people. As such, poverty is now becoming an issue of concern together with HIV/AIDS, population growth, and other associated socio-economic consequences.

PNG's current population growth rate is 3.5 per cent, as indicated on Table 2. About 45 per cent of the population belong to the young dependent age group of 0-14 years posing many social and economic implications for the country now and in future.

**Table 2 : Certain social indicators for PNG**

<b>Indicators</b>	<b>Unit</b>	<b>Year</b>	<b>Measure</b>
Human Development Index	No unit	1999	0.534 rank=122/162
Pop. Growth rate	%	1990-2000	3.5
Pop. density	Persons per 1000 hectares	2000	110
Adult literacy	% age group > 15 yrs	1999/2002	45/76* 56
Infant mortality rate	Per 1000 live births	1999	79
Life expectancy at birth	Years	1999	56.2
Pop. Without access to safe water	%	2000	35
HIV/AIDS	AIDS cases per 1000	1999	2974

Source: Draft National Assessment Report on the World Summit on Sustainable Development

Nothing has higher priority in the development strategies than the education and training of the young people. Much effort has been diverted to that end over the past decade. Literacy is increasing with increasing enrolment rates now near 100 per cent. However, literacy is still far from universal. For 2002, the literacy rate is estimated to be 56%, with a higher rate for males than females. There are many concerns about the quality of formal education and a frequently expressed need for greatly increased effort on vocational training, apprenticeship programmes and other on-the-job, skill learning opportunities.

The promotion of education, public awareness and training are vital components for sustainable development to be achieved through adequate literacy levels and reliable information and sufficient training, these were lacking in the country. Currently data collection in PNG focuses on economic information while data on environment and to a lesser extent, on social indicators is generally poor. The low rate of literacy, participation and retention remain a critical concern.

Furthermore, what makes it more critical is the difference between males and females whereby females are substantially worse off than the males in these areas. Currently, it is estimated that only about 56% of the population is literate compared to an average of 85% for the other Pacific Island countries. It was 45% in 1999 according to one source with the female literacy rate lower than males (40.3% compared to 49.7%). Information gathering and analysis also tends to be on an ad hoc basis, responding to political demands rather

than being coordinated and planned in a rational manner. Much of the existing data are also inaccessible to clients who need this information for various useful purposes particularly for planning and decision-making.

PNG ranks among the bottom ten countries worldwide for access to safe drinking water. According to United Nations Development Program's (UNDP's) 2001 Human Development Report, 76% of the population is without access to safe water. Further, only a very small portion of the country's population, as indicated by the high infant mortality rate, has adequate sanitation facilities. This situation has a significant bearing on the general health status of the population and the context in which the HIV epidemic is spreading is an emerging issue to be given priority in the development plans, given its disastrous impact on the overall economy.

## **Part II : Key development challenges facing PNG**

PNG is faced many development challenges in the area of trade and investment; poverty eradication; education; malaria and other diseases; HIV/AIDS; child mortality; and issues relating gender equality and empowerment of women.

Most of the above issues are being dealt with in Part V, however, this section deliberates on three important development challenges facing PNG, namely law and order and national security; urbanization; and unemployment.

### **1. Urbanization**

PNG's urban areas constitute three cities and seventeen provincial capitals (towns), as indicated in Table 3. Certain district headquarters have grown to the size of towns due to certain economic activities, such as mining and other project developments.

**Table 3 : Towns and Cities of PNG**

<b>Towns/Cities</b>	<b>Status</b>	<b>Province</b>	<b>Population</b>
Port Moresby	City (Nation's Capital)	National Capital District	312, 300 <sup>a</sup>
Lae	City	Morobe	113, 118 <sup>a</sup>
Mount Hagen	City	Western Highlands	27, 782 <sup>a</sup>
Madang	Town	Madang	32, 171 <sup>a</sup>
Goroka	Town	Eastern Highlands	17, 269 <sup>a</sup>
Rabaul	Town	East New Britain	17, 000
Wewak	Town	East Sepik	25, 143
Wabag	Town	Enga	n/a
Arawa	Town	North Solomon	n/a

Porgera	Mining Township	Enga	n/a
Kerema	Town	Gulf	n/a
Lorangau	Town	Manus	n/a
Alatau	Town	Milne Bay	6, 500
Kavieng	Town	New Ireland	6, 800
Lihir	Mining Township	New Ireland	n/a
Popondetta	Town	Oro	n/a
Vanimu	Town	West Sepik	7, 900
Kundiawa	Town	Simbu	n/a
Mendi	Town	Southern Highlands	6, 2000
Daru	Town	Western	8, 500
Kiunga	Town	Western	n/a
Kimbe	Town	West New Britain	8, 400

Sources : <http://www.citypopulation.de/PapuaNewGuinea.html>

: [http://www.world-gazetteer.com/c/c\\_pg.htm](http://www.world-gazetteer.com/c/c_pg.htm)

Note : <sup>a</sup> represents pop. estimates for the year 2000

: <sup>b</sup> represents pop. estimate for 1999

: n/a represents data "not available"

There is an increasing rural urban migration to the towns and cities and also economic townships in search of employment; improved services, such as schools, hospitals; and a better living standard in general.

The public and private sectors are not able to provide employment to the influx of job seekers and urban dwellers. As a result, the unemployed youths are engaged in criminal and other anti-social activities in urban areas of the country. Further, the urban migration has resulted in the development of squatter settlements in the periphery of towns and cities. The squatter settlements have become breeding grounds for criminals and that are mostly responsible for causing criminal activities and other social disorders in towns and cities.

Most of the squatter settlements lack the provision of basic services, such as water and sanitation, schools and health services. As a result, the people live in an unhealthy environment and become vulnerable to common diseases and sickness, such as malaria, typhoid fever, and diarrhoea.

The influx of people has resulted in forced extension of squatter settlements in customary lands around the periphery of towns and cities. This has often resulted in ethnic tensions and conflicts between settlers and landowners. In an effort to address such a situation in Madang Province, the Madang Provincial Government issued eviction notices and repatriated settlers to their province of origin.

PNG does not have the requisite policies and programmes to address the rural-urban migration issues, which consequently leads to complex issues, such as the squatter settlements and related concerns in the country. Hence, the need for PNG put in place policies, strategies and programmes as well as availing the necessary resources to deal with these issues. Coupled with this, PNG does not have technical experts, financial and necessary other resources to effectively deal with these issues.

In this context, any support and assistance from international organizations, such as UN HABITAT, other UN Agencies, donor countries, as well as NGOs are critical towards addressing these issues of national importance.

## **2. Law and order**

The poor law and order situation in PNG remains a principal constraint to economic, social and other aspects of development. It is an impediment to business activities and acts as a discouraging factor to new investments in the country.

The PNG Government is committed towards addressing this issue. This is clearly reflected by the commitment of scarce budgetary resources to support programmes and activities to maintain law and order in the country. For instance, under the PNG Law and Justice Sector program, the Government aims to improve sectoral coordination, the functioning of formal law and justice agencies and increase the focus on crime prevention and restorative justice.

This is part of the Government's efforts to ensure that the law and justice agencies operate effectively as an integrated system. This would enable the Government to achieve greater coordination and efficiency in program spending. For instance, the National Coordinating Committee, made up of the Law and Justice heads, was established in 2003 to provide overall planning and policy direction and submit a single sector programme for funding under the Budget each year.

This Committee had already established an initial Sector Strategy to guide policy implementation, and the main objectives of the strategy are to:

- prevention and control of criminal and other activities that threaten peace and good order;
- improve access to and the reliability of civil, criminal and other dispute resolution processes;
- improve the integrity in leadership and good governance at all levels; and

- develop reliable and effective rehabilitation processes.

In order to strengthen the capacities of relevant Departments and Agencies to deal with the law and order situation in the country, the Government had increased budgetary allocation to the Department of Police, Justice and Attorney General, the Courts and the Correction Services. The Government aims to bring about its long-term strategy in the sector by maintaining the capacity of the system to arrest and process offenders effectively.

The National Law and Justice Policy aims to develop community participation, as well as other stakeholders, in mediation and conflict resolution. The Community Justice Center project implemented by Justice Services and Attorney General is looking at providing alternatives to imprisonment, and pilot projects have commenced in Morobe Province and Kainantu District of the Eastern Highlands Province. This has the potential to reduce costs in the sector as well as bringing about meaningful ownership to law and justice by the community.

### **3. Unemployment**

PNG has one of the highest unemployment rates in the Pacific region. The universities, tertiary colleges, technical schools, secondary and primary schools are producing thousands of young men, and women every year that could not be employed in the formal employment sector. The Public Service, once seen as the main employer, is undergoing reforms and many public servants are being laid off and there is a current ban on any new recruitment.

Every year, about 50, 000 young people graduate or drop out from school, to find that there are no jobs. The formal employment in the manufacturing sector has shrunk from about 14.5% to 13.6 labor force and unemployment has grown rapidly from 2.9% in 1980 to 7.7% in 1990.

The situation in the urban areas is more serious and urban unemployment has grown from 8.7% in 1980 to 30.1% in 1990. Since then, the unemployment rate has increased substantially and an estimated 20, 000 new jobs must be created annually to contain unemployment at manageable levels.

In May 1994, an Employment Summit in PNG concluded that failure to create job opportunities in the country would lead to a "blowout in the number of job seekers escalating the formal unemployment to unmanageable proportions". This prediction has come to fruition and the unemployment level is unbelievably high and all indicators point to worsening situations in the years ahead.

The unemployment situation in the rural areas is quite different. Many people in the rural areas have a choice as to whether they pursue a part cash, part subsistence lifestyle in the village as distinct from wage job. Labor shortages arise from entrepreneurs with businesses in some rural areas.

In order to address this situation, PNG is embarking on a number of policies to generate employment, both in the rural and urban areas. Given the magnitude of the problem, PNG requires the support of the development partners, NGOs, private sector, foreign investors and other stakeholders.

### **Part III : National framework for sustainable development**

The Preamble of PNG's National Constitution, especially the Fourth Goal, states "We declare our fourth goal to be for PNG's natural resources and environment to be conserved and used for the collective benefit for us all, and to be replenished for the benefit of the future generations. We accordingly call for:

- Wise use to be made of our natural resources and the environment in and on the land or seabed, in the sea, under the land, and in the air, in the interests of our development and in trust for future generations; and
- The conservation and replenishment, for the benefit of ourselves and posterity, of the environment and its sacred, scenic and historic qualities; and
- All necessary steps to be taken to give adequate protection to all our valued birds, animals, fish, insects, plants and trees."

Being guided by these and other sustainable development goals and objectives, the country had also put in place the necessary policies, as well as the legislative, institutional and administrative mechanisms to pursue the country's sustainable development aspirations.

Further, in 1991, the PNG Government endorsed the over-riding principle of sustainable development as policy for resource development in PNG.

Given that the country had already embraced the principle of sustainable development, PNG fully supported the international efforts that culminated in the adoption of the Sustainable Development Agenda at the Rio Earth Summit in Rio de Janeiro, Brazil, in June 1992. Hence, the country's signatory and subsequent ratification of the Rio Declaration, Agenda 21, the Convention on Biological Diversity, the Climate Change Convention, and the Forest Principles.

Further, as a Small Island Developing State, PNG endorsed the Barbados Programme of Action for the Sustainable Development of Small Island Developing State, when it was adopted in 1994. The BPoA issues are also priority issues and development concerns for the country and PNG is fully committed towards implementing the BPoA commitments.

Chapter 8 of the Agenda 21 calls for all countries to develop national sustainable development strategies to implement the sustainable development agenda. Further, Chapter X of the BPoA highlights the importance of national institutions and administrative capacity for the effective implementation of the BPoA.

Accordingly, in April 1994, the National Executive Council (NEC) endorsed the establishment of an interim National Sustainable Development Steering Committee (NSDSC), which coordinated the formulation of the National Sustainable Development Strategy (NSDS) through a nationwide participatory process. The Steering Committee was made up of representatives of Government Departments and Agencies, NGOs, Private Sector, and other relevant stakeholders.

The NEC also sanctioned the Departments of National Planning & Monitoring, and Environment & Conservation to coordinate the implementation of the sustainable development agenda in the country. Other members of the Steering Committee were, inter alia, the Departments of Prime Minister, Finance, Fisheries, Agriculture & Livestock, and National Forest Authority.

This important policy development process is aimed at making clear intervention on the Sustainable Development Agenda and the BPoA suffered significantly as a result of a change of Government. This resulted in consequential changes to government policies and priorities.

The new Government instituted a new restructure to the country's planning process that resulted in the movement of functions from one Department to another. This also resulted in the movement of Government officials, who were members of the NSDSC and other officials dealing with the implementation of the NSDS.

Further, in the ensuing years, the country underwent frequent changes of government, which seriously affected the development of a broad sustainable development policy framework and institutional mechanisms to pursue the country's sustainable development commitments, including the BPoA.

PNG has not put in place sustainable development policies as well as institutional and administrative framework to implement the sustainable development agenda. However, since these commitments were also prevailing priority development concerns for the country, the existing policies, institutional and administrative mechanisms fully catered for their implementation in the country.

In September last year (2002), PNG endorsed the outcomes of the WSSD Summit, including the JPOI, which reiterates the importance of strengthening institutional frameworks for sustainable development at the national level. In light of this as well as the current process to review the full and effective implementation of the BPoA had resulted in the recent establishment of a Committee on Sustainable Development. This Committee is charged to put in place a broad policy on sustainable development. It is chaired by the Department of National Planning & Monitoring.

#### **Part IV : Review of PNG's Implementation of the BPoA**

##### **1. Climate change and sea level rise**

PNG is vulnerable to the impacts of climate change and sea level rise, especially to its small islands and low-lying atolls, low coastal plains, and fragile mountain ecosystem. Sea-level rise is of particular concern due to its adverse impacts, such as submersion of low-lying islands and atolls, destruction of existing infrastructure and agricultural land in low-lying plains, damage coral reefs, and could affect the rich fisheries and marine resources of the country.

The impacts of climate change and sea level rise is already being felt in PNG. For instance, the rise in sea level had submerged small islands and atolls of the Duke of York, East New Britain Province. Also, the food gardens of the Mortlock and Tasman Islands of North Solomon Province are being invaded by rising sea level. Further, their limited groundwater source for drinking had been affected by saline intrusion. As a result, the inhabitants are being forced to resettle on other bigger islands.

PNG requires the support of bilateral and multilateral partners, such as the UN HABITAT to assist the affected inhabitants of these islands, especially in the resettlement efforts of these people in other islands.

The Highlands of PNG is getting warmer due to rise in temperature. Consequently, malaria carrying mosquito parasites are migrating to these areas and people being affected by malaria. This could be attributed to the rising temperatures caused by the climate change phenomenon.

Further, the country is being affected by unprecedented environmental and natural disasters. One of the major natural disasters that could be linked to climate change and sea level rise is the mid-1997 to 1998 drought in the country. People who depend on rainwater could not get it for months. Fresh drinking water sources were severely affected by the drought. The drought was so severe that it affected food gardens and a significant number of the country's population suffered from dehydration, water-related diseases and hunger.

The El Nino phenomenon is responsible for the severe drought.

It did not only affect the social and economic well-being of the people, but also had negative impact on the national economy, through, for example, the closure of the Ok Tedi and Porgera mines.

Given the country's vulnerability to the impacts of climate change and sea level rise, such as those noted above, the country is committed towards addressing this issue at the national, regional, and international levels.

### **Ratification/signature of the United Nations Framework Convention on Climate Change, the Kyoto Protocol, Montreal Protocol on Substances that Deplete the Ozone layer and other related instruments**

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted at the Rio Earth Summit in June 2002 and entered into force on 21 March 1994. At this Conference, PNG signed the Convention and subsequently ratified it on 16 March 1993.

PNG also became a signatory to the Kyoto Protocol to the UNFCCC in December 1997 and ratified it in December 2000. In early 2003, PNG had also ratified the Montreal Protocol on Substance that Deplete the Ozone Layer.

### **Policies, legal, institutional and administrative arrangements**

Having ratified especially the UNFCCC and the Kyoto Protocol, PNG had established the Greenhouse Office in the Department of Environment & Conservation (DEC). This Office is responsible for developing and implementing policies for the country to address climate change and sea-level rise as well as other related issues.

An important project that is being implemented in the country is the Climate Change Assistant Project, funded by the Global Environmental Facility (GEF), which is assisting PNG to carry out a national greenhouse gas inventory and identify potential solutions and mitigation strategies. As part of this Project, the Greenhouse Office had also coordinated the preparation of PNG's Initial National Communication under the UNFCCC.

The Greenhouse Office is being supported by two Committees, namely the Climate Change Steering Committee, and the Climate Change Technical Committee. The Steering Committee is responsible for the coordination of the Climate Change Assistant Project and its members include Department of Foreign Affairs, UNDP, and other technical Departments and Agencies.

The Technical Committee is made up of representatives from the technical Departments and Agencies, Universities, NGOs and the private sector. It is responsible for collaboration among relevant stakeholders to address technical issues pertaining to implementation aspects of climate change and sea-level rise.

Despite the enormous responsibility to coordinate the country's effort to respond its climate change commitments, Greenhouse Office is understaffed and lack technical expertise to effectively discharge its responsibilities. This situation must be improved by providing more financial and manpower resources to enhance its capacity to address climate change and sea level rise issues.

An important factor that affects the country's implementation of its climate change commitments is the frequent restructuring of DEC. Instability in the administration and changes in personnel seriously affects its performance towards addressing this issue of national and global importance.

PNG's efforts to address the climate change and sea level rise issues are supported by regional initiatives, such as the Pacific Islands Global Observing System; and the South Pacific Seal Level and Climate Monitoring system.

### **Relevance of climate change to other sectors and adaptation issues**

The issue of climate change and sea-level rise is also related to other sustainable development and environmental issues, such as the coastal and marine environments; fisheries; agriculture; biodiversity; water resources and health. They are well documented in the PNG Initial National Communication under the UNFCCC.

An important challenge that the country faces is to identify the degree of future risks induced by climate change, variability and sea-level rise on those areas and to determine how to respond to the threats. One form of response is adaptation, which aims to adjust or cope with the changes brought about by climate change on these sectors, as briefly noted hereunder.

#### *Coastal and marine environments*

The PNG's coastline, coastal villages and the rural coastal population are vulnerable to sea level rise and other weather-related manifestations of climate change. Most of the major town and cities of the coastal provinces as well as islands and communities located along the coastlines are also vulnerable to the impacts of climate change and sea level rise.

The main impacts will be the inundation of coastal wetlands and foreshore areas, bleaching of corals, which will weaken the coral reefs as barrier protection systems. Loss of wetlands, fresh water sources due to seawater intrusion, and lands may eventually lead to displacement of communities, resulting in aggravated future social problems.

Further, there is a need for the Government to take account of the potential impacts of likely changes in sea level, thus avoiding developments in areas prone to inundation or accelerated erosion and the need to ensure the safety of people. In order to ascertain the impacts of climate change, there is also the need to ensure routine monitoring of the country's coastal and marine environments.

### *Fisheries*

The levels of fishing effort and fish behavior are directly affected by weather and surface temperatures. Such situations are likely to be complicated by climate change, which would have the greatest impact on fisheries that are already stressed, for example, through overexploitation.

Many breeding grounds for commercially important fish and shellfish are located in shallow waters near the coast and with the mangrove systems. Hence, any loss of the mangrove ecosystem due to climate change and sea level rise would have severe consequences on artisanal and commercial fisheries.

In cognizant of this, there is a need for adaptation strategies aimed at acquiring the capacity to respond to unexpected changes in the environment by changes to fishery management approaches. Data on the spatial and temporal distribution patterns of tuna can help fish management authorities adjust their management practices. In this context, there is a need to put in place a system of data collection and strengthen the efforts of University of PNG (UPNG) and other research institutions.

Further, aquaculture activities in the country should relax the gap between demand and supply and reduce pressure on wild stockings. The expansion of aquaculture activities are hampered by resource constraints, both financial and technical expertise. Hence, the need to avail the necessary resources to village communities to realize their potential in this area of fisheries activity.

### *Agriculture*

As indicated above, the agriculture sector is very sensitive to climate change and climate variability. Crop yields are influenced by inter-annual variations in weather, nutrient status of soils and temperature. Climate change will affect soils primarily through changes in soil moisture, soil temperature, and soil organic matter content.

Cognizant of the impacts on agricultural productivity, there is a need for research activities to find out more about adaptive measures that exist, such as breeding and genetic programs as well as research into new plant varieties, crop rotation, use of irrigation, and altered nutrition levels.

### *Biodiversity*

Regarding biodiversity, the variability of the natural environment is already under constant threat from current patterns of development, consumption, urbanization, infrastructure development and population growth. Any changes to the natural systems through climate change and sea-level rise will greatly affect the country's unique and very rich biodiversity.

PNG had put in place policies, programmes and activities to protect its rich biodiversity as well as the utilization of these resources to the maximum benefit of the people. In the face of the possible impacts of climate change, monitoring the distribution of species or species associations are important to determine the difference brought about by the impacts of climate change.

Further, the country has to strengthen and enforce policies that protect critical habitats.

### *Water resources*

The country's water resources have been gradually depleted due to rapid industrial and resource development, population pressure, forestry and agriculture extension. Climate change poses a strong possibility of rapidly depleting the water resource availability, owing to fluctuations in rainfall behavior patterns and evapo-transpiration potential.

Water related issues due to climate change and other factors are pursued under the Environment Act 2000, which provides for activities such as monitoring, data collection and management of the water resources.

Transfer of new technology to assist with water projects and activities is important for the country. In this context, project developers have been encouraged to upgrade capability and capacity-building for water quality monitoring and assist in the acquisition of upgraded resources to enhance national technologies. One such example is the alert flow forecasting and warning soft and hardware system that is currently used by the Ok Tedi Mining Limited, and is recommended in other areas of the country.

The system is functioning very well but it is expensive to maintain. The costs of maintenance could affect the application of the system in other locations of the country.

Further, the use of new technologies, such as the satellite data transmission technology and remote sensing can result in real time data transfer with reasonable precision. Using such technologies would be beneficial to the country, and hence the need to train its technical experts to install and operate such new technologies.

An area of significant progress as a result of severe water shortages in the small islands had been the emergence of basic water acquisition technologies, particularly tanks. Tanks have been designed to withstand salt, durability, compatibility for transportation and easy to assemble on site. This concept is inexpensive in the long term and requires no maintenance, training or managerial skills.

### *Health*

The impacts of climate change would also affect the health of the people of PNG. One such example, as indicated above, is the migration of malaria carrying mosquitoes to the Highlands region and infecting the people with malaria.

In light of this, the country must put in place a system to control vector-borne diseases, such as malaria, which should identify location and elevation of habitats for the various species of malaria, compile and monitor the occurrence of diseases and identify vulnerable areas and people resistant to particular strain.

Efforts in these areas could be hampered by the lack of financial and technical resources to put in place such a system, which is very critical towards effecting timely and preventive measures to reduce the exacerbation of climate change related health issues.

### **Mitigation options**

Mitigating the impacts of climate change is critical for the long-term environment and economic sustainability of the country. Though the country is not a major emitter of GHG emissions, PNG could also participate in mitigation efforts, using especially the renewable energy sources and the forestry sector.

The option to use forests, as a major sink is obvious as the country has large tracts of forests still intact and the potential for establishing reforestation and afforestation projects needs to be explored. The use of forests would also enhance PNG's approaches to conserving its unique and very rich biological diversity.

Other options, such as the use of biomass, biogas, hydro-power, etc, from available resources in the country needs to be explored. Funding assistance from GEF and other sources designed to assist SIDS with mitigation and adaptation projects are not being actively pursued by the country. As a result, the PNG is missing out on very important

international resources that could be secured to address the many climate change and sea level related issues facing the country.

PNG has natural gas resources to generate electricity. Currently, the Hides gas of the Southern Highlands powers the Porgera Gold Mine in the Enga Province. Though the operation may be small in size, it is certainly contributing towards the reduction of GHG emissions to the atmosphere.

The major natural gas reservoir is found in the Moran Area of the Southern Highlands. Efforts to build a pipeline to Queensland, Australia have not materialized. However, whenever the project is developed, whether it is pipelined to Australia or processed locally, the development and utilization of this renewable energy source will contribute significantly towards the reduction of GHG emissions in the atmosphere.

### **Public awareness on climate change**

At the national level, education, training of human resources, and public awareness programmes and activities will set the platform for the country to address the climate change and achieve sustainability in the long term.

Making the public aware is important so that they are fully engaged and support the efforts of the Government to address this issue. However, majority of the people are not made aware of this climate change phenomenon and its impacts due to certain factors, such as the very minimal efforts by the Government to make people aware of this issue; illiteracy is very high and thus they cannot read newspaper articles on this issue; and radio and television programmes are not accessible to the majority of the people in the rural.

Most of the Departments and Agencies that have important roles to play in addressing the climate change and its related issues are not aware of their responsibilities, let alone the ordinary people and other stakeholders.

Nevertheless, few examples of progresses made in this area are the inclusion of the climate and sea level rise in education curriculum in Manus and Central Provinces. Two main institutions, namely the UPNG and the National Weather Service offer formal education and training courses to address climate and sea level rise.

The Government's performance in this area is severely hampered by financial and other resource constraints. In light of this, perhaps, one way to make some progress is to set up a sustainable development network that links to NGOs and community-based initiatives around the country.

## Measures and actions to overcome constraints

In order to address the climate change and sea level rise and other related issues, PNG must take certain measures and actions to overcome difficulties and constraints, which includes the following:

- (i) ensure the effective implementation of the UNFCCC, the Kyoto Protocol and other related environmental multilateral agreements to address the climate change and sea level rise and other related issues.
- (ii) ensure that DEC, in particular the Greenhouse Office, is provided with adequate funding, technical manpower, and other resources to meet the challenges facing the country. PNG appreciates the continued support and assistance of GEF and other development partners.
- (iii) ensure that DEC does not undergo a seemingly endless process of institutional reorganization that creates instability and affects the effective discharge of its functions to address this important issue.
- (iv) ensure that the establishment towns, cities, and communities as well as infrastructure developments are kept away from areas that are vulnerable to the impacts of sea level rise due to climate change.
- (v) promote the establishment of research institutions to undertake researches, collect data, and monitor the impacts of climate change and sea level rise, which are important for developing adaptation strategies and other vital activities to reduce the impact of climate change and sea level rise in the country.
- (vi) put in place an effective manpower training programme to produce technically competent experts that will take charge of critical research activities and also develop and implement policies aimed at addressing climate change and its related impacts in the country.
- (vii) encourage the use of affordable and environmentally friendly technologies to address climate change and other related challenges facing the country.
- (viii) ensure an effective public awareness programme on the impacts of climate change so that the people are also involved in mitigation and adaptation activities that will reduce the impacts of this climatic phenomenon at the community level.
- (ix) seek the support of the international community to assist the people of Duke of York, Mortlock, and Tasman islands in their resettlement efforts in other main islands due to the impacts of climate change and sea level rise.

- (x) establish adaptation projects for the country to cope with changes brought about by climate change and sea level on important sectors, such as coastal and marine environments, fisheries, agriculture, biodiversity, water resources, and health.
- (xi) undertake agricultural research activities to find out more about adaptive measures that exist, such as breeding and genetic programs as well as research into new plant varieties, crop rotation, use of irrigation, and altered nutrition levels, given the impacts on agricultural productivity due droughts and other impact of climate change.
- (xii) monitor the distribution of biodiversity species or species associations to determine the difference brought about by the impacts of climate change.
- (xiii) encourage the establishment of reforestation and afforestation projects that will not only be used as sinks for carbon dioxide emissions but also conserve the country's rich biodiversity resources.
- (ivx) encourage the establishment of renewable energy projects, biomass, biogas, hydroelectricity, and solar energy to reduce the dependency and consumption of fuel energy.

## 2. Natural and environmental disasters

PNG is frequently affected by natural and environmental disasters that have severe impact on the lives of the people. These includes, inter alia: cyclones, earthquakes, volcanic eruptions, tsunamis, floods, landslides, droughts and frost in the highlands, fires, agricultural infestation, oil and chemical spill, as well as pollution into the rivers systems and the environment by mining operations and other development activities. The record of major natural disasters the country experienced are given in Table 4.

**(Due to lack of data, the Table is not fully completed, especially the number of people affected and the number of deaths caused by natural disasters.)-Footnote**

Most of the natural disasters have been so severe and had detrimental impact not only on the lives of the people but also the nation's economy. Few examples of such natural disasters are the 1972 frost and drought in the Highlands, Rabaul volcanic eruption in 1994, and the nationwide drought in 1997.

**Table 4 : Major recorded disasters in PNG**

Year	Disaster	Location	People affected	Deaths
2003	Flood	East Sepik		nil
2002	Volcano Eruption	Pago, WN Britain	10,500	nil
2002	Drought	Various Provinces	200,000	nil
2002	Earthquake	East Sepik		
2002	E/Quake &L/slide	Wantoat, Morobe	13,405	9
2000	Earthquake	NG Islands		nil
1999	Flood	NF,Western	10,000	
1998	Tsunami	Aitape, Sandaun	12,4270	2,227
1998	Flood	East Sepik; Ramu & Mumeng in Morobe		
1998	Cyclone Gale	Milne Bay	50,000	Nil
1998	D.Storm	Milne Bay		
1997	Drought/Frost	Nationwide	3158961	U/K
1997	Cyclone	Central; Milne Bay		
1996	Volcano Eruption	Manam, Madang	3,000	
1994	Cyclone	Milne Bay		
1994	Volcano Eruption	Rabau, I E.N.Britain	50,000	3
1993	Cyclone	N.Islands; Milne Bay	50,000	1
1993	Landslide	Kaiapit Morobe; Finisterire, Madang	7,000	14
1992	Volcano	Manam, Madang	2,000	
1972	Drought	Highlands		
1957	Volcano Eruption	Manam, Madang	3,200	
1951	Volcano Eruption	Laminton, Oro	3,000	
1937	Volcano Eruption	Rabaul, E.N.Britain	8,000	500

Sources: Rabaul Volcano Observatory & Geophysical Observatory, Port Moresby & National Weather Bureau

### **Policies, legal, institutional and administrative arrangements**

The National Disaster Management Office (NDMO) was established by the Disaster Management Act (1984, revised in 1987). It is charged with the mandate to formulate policies and strategies for disaster management and prevention in the country. The Office is based in Port Moresby and coordinates all responses to major disasters.

Further, the NDMO is responsible for, inter alia: the supervision of the national state of preparedness for emergencies and disasters; coordinate relief actions and collate national relief requirements; lay down guidelines for the preparation and format of provincial disaster plans; and foster public awareness of the effects of natural hazards and measures that can be taken to reduce their effects.

PNG's disaster management and other related activities are pursued under plans, programmes and activities, such as the National Disaster Management Plan, National Response Action Plan, Provincial Emergency and Disaster Plans, Specific Contingency Plans, and Education and Training Programme.

Natural and environmental disasters are viewed as issues that fall within the functions of NDMO and DEC. However, when natural and environmental disasters strike, they create havoc for many Departments and Agencies, such as Health, Education, Town Planning Authorities, Provincial and Local level Governments, and other stakeholders, such as NGOs and private sector.

In this context, there is a need for PNG to ensure that all the relevant Departments and Agencies as well as other stakeholders are fully engaged in the policy formulation and implementation process. Such inter-Agency collaboration would also enable them to take into account disaster management issues in their functional operations. This cross-sectoral approach should enhance the country's capacity to respond to natural and environmental disasters.

Plans are in the process of being formalized for each Government entities and business houses have a full time disaster focal point officer.

Provincial Disaster Offices are established in all provinces and they are headed by the Provincial Disaster Coordinators, who are responsible for reporting of disasters to the Head Office in Port Moresby. Despite the many disasters hitting PNG, the country is poorly prepared. The main obstacle is resource constraints, both financial and manpower, coupled with lack of coordinated national response.

### **Consequences of natural and environmental disasters and costs of rehabilitation**

PNG is frequently affected by severe natural disasters and as a result the country bears long lasting social, economic and environmental consequences. Cost of rehabilitation in the agriculture, infrastructure, and tourism sectors are enormous.

Natural disasters, such as droughts and frosts severely affects the agriculture sector, both subsistence and commercial. The 1997 nationwide drought and similar droughts in 1972, 1982, and the 2002 had significant impact on the lives of the people. Food crops were

affected and many people suffered from hunger and starvation. In most cases, it takes about 2 years for affected people to rehabilitate their food gardens and return to normal lifestyle.

Droughts also affect cash crops, such as coffee, and tea that generate foreign exchange for the country. Poor production had resulted in less income generation for the country. Further, the 1997 nationwide drought was so severe that it led to the closure of the Ok Tedi, and Porgera mines, thus resulting in loss of national revenue.

Volcanic eruptions can cause a great deal of damage to the inhabitants living within the vicinity of the affected area. People are normally evacuated from the affected areas and are resettled elsewhere. Their normal way of life is affected and relocating them in other places is a difficult task. They require assistance for resettlement and also encounter associated social and cultural problems.

The Rabaul volcanic eruption in 1994 demonstrated the magnitude and severity of destructions such natural disasters can cause to human settlement. The township of Rabaul was completely devastated nine years ago and the Government's reconstruction and recovery efforts had not witnessed much progress. This is a testimony to the sorts of irreparable damage that natural disasters can cause to human settlements.

Other natural disasters, such as floods, landslides, earthquake, and cyclones had also caused severe social, economic, and environmental consequences. The massive landslides and earthquake in the Morobe Province in 1992 affected 13,000 people. As a result, 9 people were confirmed dead and 27 people missing. This demonstrates not only the environmental and infrastructural damage to the affected areas but is also a testament to irreparable damage to life and soul of the affected people.

### **Disaster management and early warning systems**

Disaster management is critical to mitigate, prepare for, and respond to the increasing range and frequency of natural and environmental disasters. Activities of such importance are pursued in the country under the Disaster Management Act (Chapter 402). The NDMO utilizes a variety of different tools, programmes and methodologies to lessen the impact of disaster and provide the means and ways of guiding the necessary prevention and mitigation; preparedness; and post-disaster management activities.

#### *Prevention and mitigation*

PNG had put in place the National Environment and Disaster Mitigation Programme, which is aimed at preventing disasters and/or mitigate the calamities that occur by using certain tools. This include the hazard management and vulnerability reduction, economic diversification, political intervention; and public awareness.

Hazards management involve activities, such as the introduction of certain varieties cash crops that are wind or flood resistant in areas prone to floods and cyclones; training of homebuilders to improve the quality and standard of housing; code encouragement, i.e. use of building inspectors to advise and encourage homeowners to utilize disaster-resistant construction techniques (rather than simply to enforce codes); and immunization campaigns to reduce threats of diseases or the necessary health education and campaigns to reduce the impact of likely sicknesses and diseases.

Given the importance of such prevention and mitigation activities, PNG must ensure that such activities are implemented in the country.

Mitigating the impact of hazards is important and the relevant Government authorities, including the NDMO, must ensure that hazard management activities are implemented in the country. Further, the Government, with the support of international organizations, bilateral partners, NGOs and other stakeholders must assist the people in their efforts to implement the hazard management activities.

Regulatory control for hazard management is a vital tool for planners. Hence, the relevant Government authorities must take this into account when zoning and planning land-use; and upholding building codes and performance standards

There is a need for collaboration between the National and Provincial Governments, churches and NGOs assist in carrying out hazard management programmes. This is because many of the hazard management activities involve vast areas and require large amount of resources. At the local level, the communities undertake a variety of activities, such as planting windbreaks and building flood embankments or volcano related activities.

### *Disaster preparedness*

The experiences of the many natural disaster that the country had witnessed should enable PNG to be prepared for any disaster. This includes the establishment of management institutions and policies, including building codes and regulatory and enforcement systems, in order to mitigate, prepare for and respond to the increasing range and frequency of natural disasters; and promote early warning systems.

PNG's disaster preparedness is stipulated in the National Disaster Management Plan, which aims to organize the response for disasters; establish an organizational structure for each phase of the disaster; establish objectives, priorities, and goals for the organization; and assess resource needs.

### *Post-disaster management*

The Government is responsible for post disaster management, which includes, recovery efforts, rehabilitation, and dealing with relief efforts. The Provincial Disaster Coordinators also join the national counter-parts in dealing with these issues.

Often, the natural disasters cause a lot of damage to lives and properties, which in most cases have been beyond the Government's capacity to respond. However, it is remarkable to note the joint efforts of other stakeholders, such as the UN Agencies, bilateral partners, churches, NGOs, private sector, and the civil society in dealing with post-disaster management issues.

### *Early warning systems*

Early warning systems and facilities for rapid dissemination of information and warnings are important for people in affected areas to escape danger and minimize the loss of property.

PNG has certain facilities, organizations, and institutions that are involved in predicting and monitoring the development of certain natural disasters. The Rabaul Volcano Observatory is responsible for monitoring volcanic activities in the country. The National Weather Office in Port Moresby is responsible for giving warnings to the country regarding natural disasters, such as droughts, frosts, and cyclones.

Due to lack of technical capacity and resource constraints, PNG does not have adequate research facilities for monitoring and predicting the occurrence of certain natural disasters. Such situations have led to the Aitape Tsunami in 1998, which suddenly, within few seconds, claimed 2,227 lives and affected 12,427 people.

Research and observation facilities are important for monitoring the development of natural and environmental disasters. The Government, with the assistance of international organizations, such as the International Meteorological Organizations, as well as other multilateral and bilateral partners, must establish more research and monitoring facilities for the different natural disasters. Such facilities would assist the country to predict and prepare for development of natural disasters, thus reducing destruction to properties and loss of lives.

The Government authorities predict the occurrence of natural disasters and warnings are given to the public using available communication networks, such as the local newspapers, radios, and TV stations. However, in most cases the rural villages and isolated islands do not have access to these means of communication. As a result, many people do not receive the warnings and encounter loss of lives and properties.

Communications through radio broadcasts can be easily received in the isolated areas of the country. The provincial radio stations, in particular, can be very useful in such situations as warnings can be given in local languages. However, due to resource constraints and other related problems, most of the radio stations are not in operation.

### **Regional mechanisms for disaster management**

Certain natural disasters, such as volcanic activities, frosts, and tsunamis are localized and only experienced in PNG. However, most other natural disasters, such as droughts, cyclones, floods and landslides are also faced by other Pacific SIDS. Regional efforts to assist PICs, to address disaster management and other related issues includes the South Pacific Disaster Reduction Programme; SOPAC Disaster Management Project that assisted Pacific SIDS in mainstreaming risk management and training and development of national stakeholders; and the SOPAC Community Risk Programme, which has an integrated disaster preparedness, hazard reduction and risk management and is assisting in capacity building across the region.

Given that the frequency and intensify of natural disasters are beyond the country's capacity to handle, PNG must participate fully in all the regional projects and actively secure much-needed funding and other resources to build capacity and other related activities to deal with the natural disasters.

### **Measures and actions to overcome constraints**

In order to effectively address the challenges facing the country in the areas of natural and environmental disasters, PNG must, inter alia:

- (i) ensure the effective implementation of the national disaster management and prevention policies and programmes.
- (ii) ensure that all the relevant Departments and Agencies as well as other stakeholders are fully engaged in the implementation of policies and programmes to respond to natural and environmental disasters in the country.
- (iii) provide more financial, technical and other resources to the National and Provincial Disaster Management Offices to effectively discharge their functions.
- (iv) ensure that the impacts of natural and environmental disasters on the lives of the people and the economy are minimized. To this end, the international community must assist PNG in its rehabilitation and reconstruction efforts in affected communities and towns.

- (v) actively involve in disaster prevention and mitigation efforts to minimize the extend of damage to properties and loss of life.
- (vi) ensure that disaster awareness and early warning systems, especially the communication networks, such as the provincial radio stations are fully functional to make people aware of imminent disasters so that they are prepared for their occurrences.
- (vii) ensure that the country has the necessary administrative and institutional capacity to mobilize national efforts to address the natural and environmental disasters related issues.
- (viii) establish research and observation facilities to monitor the development of different natural and environmental disasters, which should assist the country to predict and prepare for development of natural disasters.

### **3. Management of wastes**

PNG is faced with waste management issues pertaining to the disposal of solid, liquid and hazardous wastes. Severe problems of waste management are directly related to urban population growth in towns and cities, industries, mining, forestry, agriculture projects. It is a real concern to PNG, given the poor waste disposal practices that have negative impacts on the freshwater and coastal marine environments that does not only affect the ecosystem but also the general health and welfare of the people.

In urban settings, especially towns and cities, waste management is a difficult task due to factors such as the rapid growth of urban population. The rural-urban migration has exacerbated the existing overloaded waste disposal systems. Also, the type and volume of wastes generated in the country have become more abundant and complex.

Special care and practices are required to deal with wastes, such as batteries, waste oil, pesticides, medical wastes, paint and solvent, industrial wastes, waste chemical containers, obsolete stockpiles of hazardous substances, PCB containing transformers, capacitors and oils, waste mineral oils, hazardous components of computers and other electrical equipment.

Management of health wastes also require special attention, however, most major health centers do not have incinerators or have incinerators that are rundown or decommissioned. A lot of medical wastes therefore end up in municipal landfills with no special treatment. Also, the burning of medical waste is commonly practiced in the country.

Most industrial operations provide some sort of treatment and disposal systems, but again, there is little information available, plus a lack of discharge monitoring system. This comes with industrial waste types and volumes that will have to be dealt with to protect the environment. Most control over discharges will therefore need to be exercised by government authorities to minimize adverse effects on the environment.

The search for environmentally safe and socially acceptable areas for disposal of wastes is an unending problem faced by all the towns and villages. All too often mangrove areas, oceans, rivers and/or beaches become landfills by default. For examples in Port Moresby City, two landfill sites in 6 Mile and Baruni cater for daily wastes generated from a population of more than 300, 000 people. It is estimated that the average daily wastes from commercial, domestic, and industrial varied between 0.21-0.4 kilograms per person per day, of which 53% are biodegradable.

Further, lack of waste segregation leading to both hazardous and non-hazardous wastes being disposed in the same landfills is also a major concern for the country.

Wastes should be collected, stored and removed from the country for safe disposal or recycling. However, this approach is deemed considerably expensive and cannot be pursued due to other logistical constraints.

Project related waste disposal from mines, forestry and agriculture are of concern to PNG. Liquid and solid wastes are dumped into the river systems and the problems associated with such practices are very obvious. For instance, the pollution of the Fly and other river systems in the Western Province by the giant Ok Tedi Mine is known the world over.

Complaints of pollution to the environment have also been reported in other mining projects, such as the Porgera and Tolukuma mines.

Discharging chemical and solid wastes by these and other projects affect the river systems that people depend on for food, drinking water, washing, and other uses. It also affects other wild animals and living organisms that depend on the river system for their existence.

Due to lack of capacity and other resource constraints, the Government depends on the goodwill of project developers to undertake scientific investigations on the possible risks and dangers waste disposals have on human health and the environment. It has not been surprising when conclusions of scientific investigations by project developers have often downplayed the risks to human health and the environment.

In this context, there is a need for the country to build the capacity of its technical Departments, Agencies and institutions so that independent investigations are done to ensure the safety of waste disposal to the environment.

## Ratification of international and regional treaties and conventions pertaining to Management of wastes

International efforts to address waste management issues and the provision of sanitation services falls within the mandate of regional and international legal instruments. Table 5 indicates certain international and regional treaties and conventions that PNG is a Party.

**Table 5 : Certain treaties and conventions on waste management**

<b>International/regional treaties and conventions</b>	<b>Date of Papua New Guinea's ratification or accession</b>
International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention)	
Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal, 1989	1 September 1995
South Pacific Nuclear Free Zone Treaty (Treaty of Rarotonga)	15 September 1989
Protocol Concerning Co-operation in Combating Pollution Emergencies in the South Pacific Region	15 September 1989
International Convention on Civil Liability for Oil Pollution Damage	12 March 1980
Montreal Protocol on Substances that Deplete the Ozone Layer	25 January 1993
Protocol of 1978 Relating to the International Convention for the Prevention of pollution from Ships (MARPOL), 1973	15 October 1993
The Stockholm Convention on Persistent Organic Pollutants	Signed on 23 May 2001
Waigani Convention on trade/trans-boundary movement in and dumping of hazardous chemicals and hazardous wastes	21 October 2001
Protocol for the Prevention of Pollution of the South Pacific Region by Dumping	15 September 1989

## Policies, legal, institutional and administrative arrangements

PNG has put in place certain policies, institutional and administrative mechanisms and the necessary legal framework to implement the objectives of these international and regional treaties and conventions as well as to address other related national waste management issues. Three environmental protection legislations had regulated the management of wastes in the country. These were the Environmental Planning Act, Environment Contaminants Act, and the Water Resources Act.

However, in 2000, the country had put in place the Environment Act 2000, which is an integration of the above legislations. The new Act provides for regulations that will regulate the use and discharge of chemicals and wastes to the environment. Other related Acts includes, inter alia, the Dumping of Wastes at Sea Act 1979; and Prevention of Pollution of the Sea Act (Chapter 371).

Environment Act 2000 has been gazetted and is likely to come into effect this year (2004). The key regulations for its implementation have also been gazetted.

The Department of Transport and DEC are charged with the formulation and implementation of appropriate policies, programmes and activities for waste management and related functions in the country. Other Departments, such as Agriculture & Livestock, Health, Mining, and Petroleum & Energy also have some responsibilities over certain aspects of chemical management and administer the above Acts.

The Department of Transport and DEC take main carriage of the management of wastes in the country. Despite the critical functions they are charged with, the two Departments do not have the financial and technical capacities and other necessary resources to effectively oversee the implementation of the environmental Acts and the related international and regional legal instruments.

### **Public awareness and educational campaigns**

Public awareness and education is important to ensure that the people are aware of the risks from exposure to chemicals and wastes. Often, this is hampered by certain difficulties, such the resource constraints, and lack of communication networks (radio and television) that can easily reach majority of people. The high level of illiteracy also contributes to this problem.

In this regard, there is a need for the relevant Departments and Agencies as well as the private sector to assume responsibility to establish education and awareness raising activities in the community and workplace on risks associated with chemicals. NGO's and other relevant stakeholders should also be involved in such activities. There is a need to improve and enforce better forms of risk communication in the workplace and in shops, which sell hazardous chemicals.

### **Introduction of clean technologies**

Most wastes are collected and transported to local (unsanitary) land where they are buried or burnt. The urban areas, especially towns and cities suffer very badly from litter problems, in particular with plastic bag containers.

Over the last 10-15 years, small enterprises have been developed to recover, reuse, and recycle materials such as metals and bottles. Little attempts have been made to recycle paper and cardboard and they are burnt or buried. The set ups are small and can not cater for the huge volumes generated daily. In addition, the rates paid do not provide enough incentive for people to collect recyclable wastes on full time basis.

Amazingly, much of the solid wastes in towns are vegetable and decayable household and garden wastes that could be easily decomposed. Special wastes like hospital and medical wastes are believed to be either buried or burnt. Such practices pose risks as there are very few temperature incinerators in PNG that can destroy microbial or medical wastes satisfactorily, and water tables may be contaminated.

In this context, there is an urgent need for PNG to adopt environmentally friendly technologies that can recycle wastes that are currently burnt, buried or disposed into the river systems. Further, technical and funding assistance are required for capacity building in the area of "clean technology" and to promote this and other concepts such as "best available techniques and best environmental practices". Improvements in these and other related areas of waste management would significantly minimize the level of wastes into the environment and thus reduce the potentials risks wastes pose to humans and the environments.

### **Measures and actions to overcome constraints**

In order address the waste management issues facing the country, PNG must, inter alia:

- (i) urgently ban the disposal of wastes to the river systems as well as the environment by major project developers that seriously affects the river and marine ecosystems as well as the general environment.
- (ii) ensure strict enforcement of the laws and regulations and impose harsh penalties on projects developers and other entities that do not uphold environmental standards in the conduct of their activities
- (iii) provide adequate funding, technical expertise and other resources to the Department of Transport & Civil Aviation, DEC and other Departments and Agencies to formulate and implement appropriate waste management policies and programmes in the country.
- (iv) improve the overloaded waste disposal systems in towns and cities to meet current standards and demands due to population increase and other factors.

- (v) support and encourage the adoption of cheaper and environmentally friendly technologies to recycle wastes in the country. PNG's requires the support of the international development partners to realize this important goal.
- (vi) put in place testing laboratories and facilities as well as adequate funding, technical experts, and other required resources to conduct independent investigations and determine the environmental damages.
- (vii) secure financial, technical and other forms of resources from bilateral partners and international organizations as well as NGOs to enhance the institutional and technical capacity to independently monitor the activities of the mining and other project developers in the country.
- (viii) ensure that the relevant Departments and Agencies charged with enforcement responsibilities are equipped with the legal and technical expertise to enforce the relevant provisions of the Environment Act 2000 and other laws so that such gross abuse of the environment is stopped immediately.
- (ix) conduct public awareness programmes and make people aware of the risks and dangers waste pose human health and the general environment.

#### **4. Coastal and marine resources**

PNG is endowed with very rich coastal and marine resources. The coastal freshwater ecosystems comprise a total area of some 34,444 km<sup>2</sup> of wetlands and 290,194km<sup>2</sup> of watershed representing 7% and 12% of the total land area of the country, respectively. Most of them are still pristine due to very low population densities, with relatively low utilization.

The marine area constitutes one of the world's longest coastline that stretches over 17,100 km and largest area of territorial sea encompassing about 3,120,000 km<sup>2</sup>, which include over 600 offshore islands. The country's total coral reef area covers over 40,000 km<sup>2</sup> of shore, with extensive sea grass beds, mudflats, estuaries, mangroves and other coastal ecosystems. Most of the coral reefs represent one of the world's richest coral reefs.

The coastal and marine areas of the country houses about 5-7% of the world's biodiversity resources. This includes 20,000 species of vascular plants (7.5% of the world's total); 300 species of corals with a potential to reach 700 species; 3000 species of fish including 300 species of freshwater species; 197 species of amphibians and some 300 species of reptiles; and more than 200 species of mammals of which 17% are endemic.

The rich coastal and marine resources are utilized to sustain the livelihood of about one quarter of the country's population and also generate foreign exchange for the economy.

PNG's rich fisheries resources cover about 2.4 million km<sup>2</sup> (one of the largest in the South Pacific). The fisheries zone includes an extended reef system, numerous islands and an extensive coastline. This sector covers commercial, artisanal, subsistence and recreational fisheries. The largest fishery in PNG is the tuna fishery.

The other significant sectors are shrimp, beche-de-mer, lobster, trochus (shell) and reef fish.

There are also potential for inland river fisheries and aquaculture. PNG's fisheries may be relatively unexploited compared to other neighboring countries, but pressure from commercial and subsistence fishing is increasing and the sustainable management of the fisheries resources is now a priority issue.

The coastal and marine ecosystems are being threatened by human activities, such as the mining, forestry and other projects that discharge wastes; domestic wastes such as sewages; shipping; reckless exploitation through destructive fishing methods, land reclamation and coastal developments.

Further, the vast coastal and marine resources provide huge opportunities to the people and the country but it also presents an enormous challenge in terms of monitoring, control and surveillance. This is particularly true for the country's huge exclusive economic zones (EEZs).

### **Ratification of the UN Convention on the Law of the Sea, Convention on Biological Diversity, the Cartagena Protocol on Biosafety and other related agreements**

PNG is a Party to many international and regional treaties and conventions, as well as bilateral treaties that are aimed at protecting the coastal and marine resources as well as the sustainable use of those resources for the benefit of its citizens. The list of certain treaties and conventions and the date of PNG's ratification and/or accession are given in Table 6.

**Table 6 : Certain treaties and convention related to management of coastal and marine resources**

Treaties and conventions	Date of accession, ratification and entry into force
1982 United Nations Convention on Law of the Sea (UNCLOS)	14 January 1997
The Agreement for the Implementation of the Provisions	4 June 1999

of the Convention relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks	
Convention on Biological Diversity	16 March 1993
Cartegena Protocol on Biosafety	
Wetlands Convention (Ramsar)	16 July 1993
Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter (London), 1972	10 March 1990
Treaty on Fisheries Between the Governments of Certain Pacific Island States and the Government of the United States of America	
Western and Central Pacific Tuna Stocks Convention	
Convention for the prohibition of Fishing with Long Driftnets in the South Pacific	
Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Concern	
Apia Convention (Nature Conservation)	
Waigani Convention	

Note that at the bilateral level, PNG entered into the Torres Strait Treaty with Australia concerning sovereignty and marine boundaries of the Torres Strait area. Similar arrangements also exist with Indonesia, Solomon Islands, and the Federated States of Micronesia.

### **Policies, legal, institutional and administrative arrangements**

To give legal effect to the implementation of the above treaties and conventions, PNG had put in place the appropriate legislations and laws, such as the Fisheries Management Act 1998, the Fauna (Protection and Control) Act, Environment Act 2000, Dumping of Waste at Sea Act 1979, to name a few. PNG had also established the necessary institutional and administrative mechanisms to devise policies, strategies, plans and programmes to implement the Legislations and Acts as well as the above treaties and conventions.

The National Seas Act gives effect to the proclamation of PNG's maritime boundaries, namely the archipelagic baselines, the territorial sea, and the 200 miles offshore boundary. This Act stipulates the different fishing activities within the respective maritime boundaries.

Further, the Environment Act 2000 accommodates the relevant provisions of the United Nations Conventions on Law of the Sea (UNCLOS) on the marine environment.

PNG had also introduced certain by-laws in line with the new environmental and fisheries legislation that also protect and/or regulate the harvesting and utilization of the fisheries and other marine resources. This includes, inter alia: National Beche-de-mer Fishery

Management Plan, approved on 10 September 2001; National Tuna Fishery Plan; and the Fish Quality Control (Export) Standards.

The Fisheries Act 1998 superceded the previous Acts, which expressly adopted the principles of sustainable development. It requires the Minister for Fisheries and the Fisheries Board to take into account sustainable development principles when considering applications for a fishing license. The Act also makes it mandatory for license applicants to comply with the requirements of other laws including the primary environmental statutes.

This Act complements the current Fisheries Policy, which seeks to ensure PNG's fisheries and other living aquatic resources are exploited within sustainable limits; and to promote the participation of citizens in investment and in the development of entrepreneurial activities. Its objectives emphasize fisheries as a renewable resource, including a range of environmental measures on conservation, protection of ecosystem, biodiversity, minimize pollution and accommodate the rights of customary owners of the fisheries resources. To meet these objectives, fishery management plans have been developed, implemented and monitored for each specific fishery to ensure sustainability.

PNG's coastal and marine resources are affected by developments, population growth, and discharge of wastes to the coastal and marine environments. Urban settlements, such as town and cities are developed in coastal areas. Lakes and rivers are used as water sources for the larger towns and cities for drinking, bathing, washing, fishing and transport by local communities. However, they are used as sinks for both industrial and domestic wastes, eg Ok Tedi, Porgera and Wau/Bulolo copper and gold mines, resulting in a number of environmental problems, such as sedimentation, siltation, flooding, deforestation, increasing incidences of waterborne diseases and increasing the concentration of heavy metals in the river.

A number of studies have shown that naturally occurring mercury levels in humans living around PNG's largest lake, Lake Murray, are high enough to cause concern. Waigani Swamp outside Port Moresby receives 80% of the city's sewage, resulting in increased sedimentation and causing rapid eutrophication.

Efforts to address land-based pollution to the coastal and marine resources are being regulated by the Environment Act 2000. This Act is administered by DEC.

Related to this is the issue of pollution at sea, which falls within the purview of the Maritime Division of the Department of Transport. The Government had also enacted two legislations, namely the Dumping of Wastes at the Sea Act and the Prevention of Pollution of the Sea Act to control activities at sea. These two legislations give effect to international and regional treaties and conventions to control pollution at sea.

In order to implementing the treaties and conventions, Acts and other requirements to meet the challenges facing the country, the relevant Departments and Agencies, such as Transport & Civil Aviation, and DEC must have the capacity to discharge those functions. However, their performances are often hampered by lack of funding, technical expertise, and other resources constraints. In this regard, PNG looks to the support of bilateral and multilateral development partners to complement its efforts to ensure the sustainable management and utilization of its coastal and marine resources.

The provincial governments are also responsible for the implementation of policies, and national strategies for the protection and sustainable use of coastal and marine resources. As it appears now, the provincial government authorities are not fully aware of the implications urban development and other economic activities have on the coastal and marine environments.

Further, at the provincial level, they do not have the technical manpower and capacity to effectively deal with the important issues that affect coastal and marine resources. As a result, critical issues of implementation as well as monitoring of the impacts of urban developments and other activities on the coastal and marine environment are largely ignored.

### **Integrated coastal zone management plans and strategies for coastal watersheds and exclusive economic zones**

Land-based activities, such as mining, forestry, agriculture and other projects along the coast and inland have a direct bearing on the coastal and marine resources of the country. Most importantly, human settlements along the coasts, especially towns and cities contribute significantly to negative impacts on the coastal and marine resources.

Equally, pollution from sea-based activities and dumping of oil and other pollutants also affect the coastal and marine resources.

In this context, there is a need to put in place integrated approach to the management of coastal and marine resources.

There is no clear intervention on the part of the PNG Government to develop specific policies and strategies to develop an integrated coastal management. However, there is adequate policies, legislations, regulations, strategies and programmes that adequately cater for the country to pursue the objectives of integrated coastal and marine resource management.

For instance, the Environment Act 2000 provides a strict regulatory framework, which is based on three different levels or streams of regulation dependent on the magnitude and significance of the activity, as indicated on Table 7.

**Table 7 : PNG's new environmental regulatory framework**

<b>Levels</b>	<b>Activities</b>
Level 1	Activities that require a minimum level of environmental protection. Regulations on such activities will be based on standards, codes and regulations that set benchmarks for environmentally acceptable activities
Level 2	Activities that require a framework of environmental approvals and that will be regulated by means of conditions in environmental permits, environmental improvement plans, and environmental management programmes
Level 3	Activities cover those with the potential of major environmental impact and are projects of national significance or of large scale. Such activities will be subject to a process of public and detailed considerations of environmental implication through EIA process

Further, a number of codes are now in place to ensure that certain activities are controlled or regulated to ensure minimum damage to the environment. These includes, inter alia; Oil Palm Operations Code of Practice, and Logging Code of Practice.

The establishment of provincial fishery management plans and the involvement of local people in the harvesting and utilization of coastal and marine resources also paves the way for better management of resources in the country. This includes the tuna, beche-de-mer, live reef fish trade, prawn, lobster and shark.

### **Deposition of PNG's EEZ Charts and Delineation of the EEZs**

Under Article 16, paragraph 2, Article 47, paragraph 9, Article 75, paragraph 2 and Article 84, paragraph 2 of the UNCLOS requires coastal states, such as PNG, to deposit with the Secretary -General of the United Nations charts showing straight baselines and archipelagic baselines as well as the outer limits of the territorial sea, the exclusive economic zone and the continental shelf.

In pursuant to this UNCLOS requirement, PNG had already deposited the archipelagic baselines and coordinates, however, the country is yet to complete the baselines and coordinates for the outer limits of the territorial sea, continental shelf and its EEZ. The country is committed towards fulfilling the other UNCLOS requirements with the support and assistance of SOPAC and other international organizations, such as the International Seabed Authority.

Consistent with the UNCLOS requirements, the PNG National Seas Act defines the national seas of the country. The seawaters are divided into internal waters, territorial sea, exclusive economic zone, and the high seas.

According to international law as well as trade arrangements, such as the EU market allows for the export of fish and marine products from within archipelagic waters. In this context, and also taking into account of the rich fisheries and marine resources as well as the seabed resources, PNG must act expeditiously to determine the baselines and geographic coordinates of the different seas.

### **Sub-regional and regional projects sustainable use, management and conservation of coastal and marine resources**

PNG commands one of the rich fishing grounds in the world. The rich tuna resources are harvested for domestic consumption and also for export earnings. PNG has fish processing facilities, such as the RD Tuna Cannery in Madang that exports fish products to the EU as well as other markets.

Also, PNG issues licenses to foreign vessels to fish in its waters. Vessel owners and vessel operators pay license fees to the Government. While allowing them to fish in PNG waters, it is incumbent on the Government to monitor and provide surveillance for their fishing activities.

PNG does not have the technology and technical expertise to monitor the fishing activities of foreign vessels in its waters. Consequently, there are a lot of illegal fishing activities and similar problems and challenges are faced by other Pacific Island countries (PICs).

To address these issues and also to ensure the sustainable use, and management of the fisheries resources, the PICs had entered into certain regional arrangements, such as the Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States of America; the Nauru Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region; and the Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Concerns.

Under the fisheries treaty with the United States, fishing vessels from the United States catch fish in the EZZs of the PIC Parties and pay license fees that are distributed among the PICs. Licensing conditions are set to ensure that the harvesting of the rich tuna stocks are done in a sustainable manner.

Other fishing vessels are also licensed to fish in the PIC waters. However, due to lack of surveillance and proper polishing of their license conditions, there is widespread under-reporting and non-reporting of catches. This results in the loss of revenue for the country. Further, by-catch of unintended species is also a concern for the country.

Regional efforts to monitor the fishing activities of foreign vessels is pursued under the Nauru Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region. This arrangement was also put in place to ensure the harvesting and management of the fisheries resources in a sustainable manner.

The regional surveillance activities under this Treaty had been affected by lack of technical capacity, trained manpower expertise, equipment, and technology, and other resources for effective implementation.

### **Ecosystem approach: elimination of destructive fishing practices, and establishment of marine protected areas**

Protection of the fisheries and marine resources are important for the long-term sustainability of the resources. In this context, PNG was instrumental in the adoption of the treaty on the prohibition of driftnet fishing in the Pacific region. Other unsustainable fishing practices, such as dynamite fishing are also prohibited by law in PNG.

Consistent with such efforts to protect and conserve the rich fisheries resources and marine resources, PNG had declared its waters as a whale sanctuary. It has been declared under the PNG Whaling Act, which is administered by the National Fisheries Authority as an interim measure. However, consideration is being given to declaration of the whale sanctuary under a new legislation managed by DEC.

### **Measures and actions to overcome constraints**

In order to ensure the sustainable management and utilization of its coastal and marine resource, PNG must, inter alia:

- (i) develop policies and strategies that are aimed at an integrated approach to the management of the coastal and marine resources of the country.
- (ii) ensure the effective implementation of regional and international treaties and conventions as well as national laws and regulations on the sustainable management and utilization of coastal and marine resources.
- (iii) ensure that the relevant Departments and Agencies, such as the National Fisheries Authority, are supported with skilled manpower, technology and other resources to effectively discharge their functions, particularly with respect to monitoring, enforcement, and surveillance activities.
- (iv) ensure that the Provincial Governments are provided with funding, technical experts, and other necessary resources to implement decentralized functions.

- (v) put an immediate stop to the disposal of wastes to the river systems from mining, and other project developments as well as human settlements, especially towns and cities in coastal areas.
- (vi) maintain the prohibition of destructive fishing practices, such as driftnet fishing in the country.
- (vii) fulfill the UNCLOS requirements, such as the determination of the baselines and other coordinates of the different waters of PNG.

## **5. Freshwater resources and sanitation services**

PNG is generally blessed with abundance of water. The high average rainfall ranging from 2000mm to 6000mm ranks PNG as one of the wettest nations in the world. A few lowland areas are drier with annual rainfall of less than 1000mm. In contrast, large areas of upland regions have average annual rainfall in excess of 4000mm and in some locations can rise to 10,000mm per year. Very good groundwater potential is available in most areas of the country.

Some islands in the New Guinea Islands Region, the Papuan islands in the Milne Bay Province and the Papuan Coast, however experienced water shortage during prolonged dry periods. The El Niño phenomenon resulting in variations in the climatic conditions has induced droughts in many parts of PNG.

The urban areas of PNG are generally provided with good reticulated water supply systems extracted from either ground water or surface source. The rural communities draw their water from springs, dug wells, river or rain water for their basic water requirements.

The national coverage of access to safe water has improved to 30% from a low 21% ten years ago while access to adequate sanitation is very low. The improvement in the provision of safe water is attributable to donor assistance to village communities with water supply systems. Also, certain communities have been assisted with dug wells equipped with hand pumps donated by aid organizations.

### **Policies, legal, institutional and administrative mechanisms**

PNG has adopted certain legislations regarding the use and sustainable management of fresh water resources and provision of sanitation services, such as the Environment Act 2000, and the National Water Supply and Sewerage Act.

The Environment Act 2000 is an encompassing legislation on the laws governing the environment in general and also water resources. The drinking water standards are stipulated in the Public Health Act, chapter 36, under the Drinking Water Quality Regulation. Further, the provision of water supply and sewerage services are covered in the National Water Supply and Sewerage Act.

The National Water Supply and Sewerage Act ( 1<sup>st</sup> January 1987) established the PNG Water Board and charged it with the duty of coordinating planning, design, construction, management and charging for water supply and sewerage services throughout the country with the exception of the National Capital District.

Certain water related regulations are being circulated for comments prior to approval, namely the Environment (Permit and Transition) Regulation; Environment (Water Quality Criteria) Regulation; Environment (Prescribed Activities) Regulation; Environment (Fees and Charges) Regulation; and Environment (Council Procedures) Regulation.

The Government had also established the National Water Supply and Sanitation Committee (WASCOM) in 1991, which continues to be the main consultation forum on water supply and sanitation. The Department of Health chairs the Committee and other members comprises relevant Departments and Agencies<sup>1</sup>; UN Agencies<sup>2</sup>; donors<sup>3</sup>; and various NGOs<sup>4</sup>. Provincial Water Supply and Sanitation Committees had been established in each Province with similar membership for consultation at local level.

Water and sanitation are cross-cutting issues and fall within the purview of certain Departments and Agencies, such as DEC, Health, National Planning & Monitoring, PNG Water Board, and Eda Ranu. These Departments and Agencies are charged with respective mandates to administer the above legislations and also formulate and implement policies.

PNG's urban water sector is relatively small by world standards. Less than 15% of the population is served by the two major urban utilities, Eda Ranu and the Waterboard, which reflects the early stage of development of the industry and the demographic features of the country. Outside the major urban centers, there are a variety of other ways communities obtain water, and many draw their own supplies. The size of the public wastewater sector is smaller than the water supply.

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<sup>1</sup> The Governments and Agencies includes, the Departments of National Planning & Rural Development, Health, Environment & Conservation, Mining, Works, Eda Ranu, PNG Water Board, Provincial & Local Level Governments, NCDC, PNG University of Technology; and National Disaster Management Office.

<sup>2</sup> UN Agencies: WHO, and UNICEF.

<sup>3</sup> Donor partners: AusAid, and European Union

<sup>4</sup> The NGOs includes the Red Cross, Lutheran Development Service, Adventist Development & Relief Agency

The Government believes that the water sector can be managed efficiently through privatization. In February 2000, NEC policy decision (17/2000) directed the Privatization Commission to immediately start preparing the water assets (Eda Ranu and the Waterboard) for privatization. The Privatization Commission has engaged project managers and strategic advisers to undertake detailed studies and to identify and evaluate the options for privatization of these entities. The Privatization Act 1999 requires the privatization policy for each enterprise to be approved by the Minister and submitted to NEC for consideration and approval. The process is on-going.

The Government's cross-sectoral approach towards addressing water resources and sanitation issues are reflected through the incorporation of these issues in other major Government policies, such as the National Health Plan 2001-2010, Medium Term Development Strategy 2003-2007, and the National Poverty Reduction Strategy.

Under the National Health Plan 2001-2010, the Government aims to achieve safe drinking water coverage to 50% of the entire population by 2010. Policy directives and priorities of the Plan encompasses general provisions, such as the establishment of a multi-sectoral coordinating body for rural water supply and sanitation at all levels; health sector to be responsible for monitoring water quality; establishment and maintenance of water supply and sanitation to be community driven; all high schools, hospitals, and health centers to have drought-proof water supply; and for all towns to have safe water supply and sewerage systems.

Under the new Medium Term Development Strategy (MTDS) 2003-2007, the issues concerning the water sector are to be addressed under health. It is one of the five priority areas of the Government. Given the status of the MTDS preparation, further details were not available at the time of writing this Report. However the Government had seen the need to intervene in the water sector after PNG's Human Development Index (HDI) in terms of 'access to safe drinking water' ranked poorly among the developing countries.

While the MTDS highlights the importance of the sector, it is left to the Water Board and entities concerned to ensure that the water sector is developed and conserved for the collective benefit of all.

The provision of safe drinking water and sanitation services are critical components of PNG's efforts to eradicate poverty. In this context, these issues had been incorporated into the National Poverty Reduction Strategy (NPRS) for nation-wide implementation. The PRS is expected to be implemented through the new Medium Term Development Strategy (MTDS) 2003-2007.

## **Water operators in PNG**

The water extraction, treatment, distribution as well as the collection of wastewater, treatment and disposal are the functions of two State-owned water utilities, PNG Waterboard and Eda Ranu. PNG Waterboard is established under the National Water Supply and Sewerage Act and manages water supplies and sewerage services in certain Provincial Towns and District Headquarters throughout the country. Eda Ranu, on the other hand registered under Companies Act, is solely owned by the Government and operates the Port Moresby City Water Supply and Sewerage systems. The water supply and sanitation services not operated by the two utilities are operated and managed by either the National Government Institutions or Provincial Governments or Local Level Governments.

It is important to note that the water supply sewage systems in the towns and cities are decades old and they do not meet the current standards. Further, they lack the capacity to meet demand due to population increase and other factors.

The maintenance and expansion of such infrastructure are very important to provide safe drinking water and sanitation services to the towns and cities of the country.

## **Water supply and sanitation coverage**

PNG's towns and cities are provided good water supply, using water supply systems and dug water from wells. Many rural communities draw their water from springs, dug wells, river or rainwater for their basic water requirements. However, there are other communities and towns that often experience drinking freshwater shortage during dry seasons. For such communities and towns, they must develop the good groundwater reservoir for daily use and also during such difficult times.

Another cheaper and appropriate means of resolving water shortage in communities and towns is through the use of water tanks. Water can be stored in tanks for use during dry seasons and also save time and energy for communities that have to travel many hours to fetch water daily. Harvesting rain water is also important for communities whose drinking water source is affected by mining, forestry and other project developments.

The regulation and management of raw water, its quality and its protection is covered in the Environment Act 2000. The Environment (Water Quality Criteria) Regulations give pre-determined water quality standards. These standards are currently undergoing consultation process prior to their adoption.

The PNG Drinking Water Quality Standards is adopted from the WHO Drinking Water Quality Guidelines. The Department of Health has reviewed the Standards and proposed adoption of the WHO 1998 Revised Guidelines through a number of consultation

processes. The revised Standards are covered in the new Drinking Water Quality Regulation<sup>5</sup>.

The adoption of such guidelines should be accompanied with financial, technical expertise, and other resources to monitor and regulate the water supplies in the country. This is particularly important to ensure that fresh drinking is not contaminated by pollutants that can affect the health of the people.

The sanitation in the urban areas is provided in the form of reticulated sewerage, septic tanks or sanitary buckets and pit latrines. The high expectations of PNG people for a western type Sanitation system such as reticulated sewerage against other appropriate technology human waste disposal alternatives is a big barrier to providing alternative sanitation technology options. Public awareness is required in this area.

The access to adequate human waste disposal in the rural communities and peri-urban areas is very low. Most people continue to use the bush, beaches or crudely built pit latrines or direct discharge latrines built over the water (sea or river), The access to adequate sanitation will improve only if high expectation is removed and alternative sanitary technologies are accepted.

### **Appropriate technology for water supply and wastewater treatment**

Appropriate technology is needed for extraction, treatment and distribution of water and collection, treatment and disposal of wastewater.

In PNG, the design philosophy for urban water supply is to make use of conventional water technology for extraction, treatment and distribution. The use of automation and high technology control systems is to be avoided or kept to very minimum. In urban sewerage systems, the conventional collection method is used and treatment is either by large septic tank or sewage stabilization ponds. There is very extensive use of onsite septic tank treatment and disposal in PNG.

In the rural areas basic technology on the use of hand pumps, gravity systems and rainwater harvesting are popular for water supply and basic pits or over-water latrines are used for sanitation. The ventilated improved pit latrine has been introduced to a number of communities but its acceptance and popularity is yet to be seen.

To succeed in the use of appropriate technology for addressing the freshwater and sanitation issues, there is a need to encourage the public to use appropriate technologies.

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<sup>5</sup> The administration of the Drinking Water Quality is vested in the Department of Health under Public Health (Drinking Water Quality) Regulation

This should motivate acceptance and eventual use, thus resolving freshwater and sanitation related issues in the country.

### **Role of donor organizations and financing institutions**

The multilateral and bilateral donors as well as NGOs and churches have made significant contribution to the provision water and sanitation services in PNG. The Asian Development Bank has played a very big role in the urban water supply development. Also, the European Union, Australian Aid for International Development, Japan International Cooperation Agency, various UN organizations, New Zealand and many other friends of PNG have assisted in many aspects of water and sanitation projects in the country.

PNG values highly the assistance provided by the international community, without which the country will have great difficulty in providing water and sanitation services for its citizens. The country greatly values the continuing roles of the donors in human resources development, capacity building and financing water and sanitation infrastructure in the country.

### **Measures and actions to overcome constraints**

Provision of freshwater resources and sanitation services is a great challenge for the country. In a effort to address the challenges, PNG must, inter alia:

- (i) ensure the effective implementation of laws and regulations to ensure the provision quality freshwater resources and sanitation services to the towns and cities and the majority of people living in rural communities.
- (ii) provide adequate finance, technical manpower and other necessary resources to Eda Ranu, PNG Waterboard, and other town and local authorities to provide adequate freshwater and sanitation services to the people.
- (iii) seek the support and assistance of the international community with funding assistance, materials, and basic technologies to utilize the surface water source, such as creeks and rivers; groundwater potential; and rain water to address the water shortage problems in the country
- (iv) undertake comprehensive public awareness activities for people to accept and use appropriate waste deposal systems, which should draw away their expectations for western type sanitation services and explore other appropriate human waste disposal alternatives.
- (v) ensure that the Government, with the support of the town and city authorities replace the aging water supply and sewerage facilities to meet the current

standards and also increase capacity to meet current demands due to population increase and other factors.

## **6. Land resources**

The importance PNG attaches to land resources is attributable to issues, such as the conservation and protection of 5-7% of the world's biological diversity; exploitation of minerals and non-renewable resources; widespread logging activities; and pressure on agricultural land due to rapid population increase. The Government's policies and activities in these and other related areas are affected by the country's land tenure system.

### **Ratification of the Convention to Combat Desertification, the Convention on Persistent Organic Pollutants and other relevant legal instruments**

Issues regarding land resources fall into the domains of many international treaties and conventions. As such, PNG is a Party to the Convention to Combat Desertification and the Convention on Persistent Organic Pollutants. PNG is also Party to other related conventions and treaties, such as the Convention on Biodiversity, the CITIES Convention, and RAMSAR Convention.

### **Policies, legal, institutional and administrative mechanisms**

PNG has put in place the legal, administrative and institutional mechanisms to implement the land resources related multilateral environmental instruments. The legal framework under which PNG's land resource related issues are dealt with falls under the Environment Act 2000 that integrated three pieces of environment protection legislation: the Environmental Planning Act<sup>6</sup>, Environmental Contaminants Act<sup>7</sup>, and the Water Resources Act<sup>8</sup>; the National Parks Act; Conservation Areas Act; Fauna (Protection and Control) Act; Crocodile Trade (Protection) Act; and the International Trade (Fauna and Flora) Act.

Land resources, such as forestry, minerals, and agriculture fall within the functional mandates of Departments and Agencies, such as the DEC, Agriculture & Livestock, Mining; and the National Forest Authority. These and other relevant Departments and Agencies administer the above legislations and also formulate and implement sectoral policies and programmes, which are aimed at the sustainable use, management and conservation of land resources.

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<sup>6</sup> The Environmental Planning Act calls for major development proposals to undertake an environmental impact assessment before approval to operate is granted by the State.

<sup>7</sup> The Environmental Contaminants Act serves to regulate ongoing management of the approved development proposal.

<sup>8</sup> The Water Resources Act is the regulatory legislation serving similar purpose to the Environmental Contaminants Act.

## **Land tenure system**

About 97% of land in PNG is customary land and are held under traditional ownership arrangements and only 3% are freehold land. This system of land ownership dictates the different land use policies and practices in the country. Issues pertaining to sustainable land use, management and conservation of land resources are also affected by the land tenure system.

Efforts to achieve a more acceptable land mobilization and development concept in the context of western/modern commerce, including its usage as security for commercial credit through the Land Tenure Conversion and lease back arrangements have not been successful. Again, with the assistance of the World Bank, an attempt to develop a land mobilization policy was unsuccessful. This was aimed at strengthening policy formulation and administration, improving land administration and development, developing land and resource information and development, reviewing alienated land administration, and supporting decentralization of land administration.

In the face of these complexities, there is a need for the country to put in place a land use planning system with zoning on the basis of agro-ecological criteria. This would require land use determinations, with the full concurrence and approval of landowners, whereby major land development proposals would ensure compliance with the zoning requirements.

In light of this, PNG's success in the protection and conservation of the rich biodiversity resources, sustainable land use, management and conservation of land resources very much depends on the involvement of the customary landowners. For example, in the forestry sector, PNG had put in place policies, programmes and strategies, such as the National Forest Development Guidelines in 1993, PNG Code of Conduct for Logging of Forests in 1996, the 1996 PNG National and Provincial Forests Plans, which are aimed enhancing land owner participation in the sustainable use, management and conservation of forest resources.

These policies and legislations recognize the importance of landowners as partners in all forms of discussions, negotiations, and decision-making regarding development, management and conservation of their forest resources. Despite such efforts, the customary landowners often allow for development of projects that seem to yield short-term economic benefits rather than the long-term environment and sustainable development objectives.

## **Population and land**

PNG has a population of about 5.19 million people<sup>9</sup>. The country's population is growing at a rate of 3.5% and an estimated density of 8.6 persons per square kilometers. This relatively low population density marks pockets of high-density areas, especially in the Highlands and in some parts of the islands provinces. Further, rural urban migration is on the rise and the towns and cities are getting overpopulated at the rate of 2.2%.

The arable agricultural land accounts for about 6.6% of the total land area, which supports about 87% of the total population. Due to the population increase, there is high demand for use of land resources for subsistence agricultural activities as well as for cash crop farming and other economic activities. As a result of overuse of the land resources as well as massive clearance of forest for such activities, there is widespread land degradation, such as soil erosion. The soil fertility is seriously affected which results in poor yields in agricultural crops.

An important policy objective for the agriculture sector is food security for the country. While focusing its efforts on this objective, the Government had also adopted policies and programmes and also established research institutions that are aimed at promoting sustainable management and use of agriculture resources. These includes, inter alia; the adoption of the National Food Security Policy in 2000, National Agriculture Development Strategy; and the establishment of the National Agriculture Research Institute in 1996, and the National Agriculture Quarantine and Inspection Authority in 1998.

While noting that the population increase naturally puts pressure on the land use system, the country is faced with the challenge to develop policies and programmes for sustainable land use, management and conservation of land resources.

## **Exploitation of natural resources**

PNG is endowed with rich natural resources, particularly the mineral deposits and the tropical forest resources. The exploitation of these resources is important for generating income for the local communities as well as the national economy. Short-term economic considerations seem to get precedence over other equally important national priority objectives, such as sustainable development, environmental protection, and conservation of the environment.

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<sup>9</sup> According to the 2002 National Population Census

### *Mineral resources*

PNG has many large-scale mining operations, such as the Ok Tedi Copper Mine<sup>10</sup>, and Porgera Gold Mines. There are many small-scale mining operations, such as the Misima, Lihir, and Tolukuma mines as well as Hides Gas Project, and Kutubu Oil projects. These mining and oil projects account for more than 60% of the export earnings.

Other mining prospects that are yet to be developed, includes, inter alia: the Ramu Cobalt Project, Kainantu, Hidden Valley, Wafi, Mt Kare Gold Mine, and Wau Gold and Silver Mine.

The Government has also put in place policies and laws to regulate the conduct of the business activities in this sector. By law, prior to granting permits to potential investors to develop such projects, they are required to undertake an environmental assessment of the possible impacts on the environment. This is intended to minimize the negative impacts on the environment.

However, despite the existence of such policies and laws, damage to the environment by mining companies is widely known within the country and abroad. Classic examples are the Bougainville and Ok Tedi Copper Mines, where chemicals and other wastes have been disposed to the environment, especially the river systems.

Such practice does not only affect the river systems but also the surrounding environment. Consumption of contaminated fish and other marine resources as well as animals and birds continues to pose danger to the health of the inhabitants. Further, drinking water source are affected and this also endangers the health of the people.

In order to minimize the impacts of mining projects on the environment, the Government, with the assistance of the World Bank has put in place the Mining and Sustainable Development, and Mine Closure policies. These policies focus on planning and management of the mining projects so that their benefits can contribute to sustainable development at local communities and the country as a whole.

DEC as well as other Departments, Agencies and Institutions do not have the technical expertise or the facilities to undertake independent tests to verify the damage to the environment and the risk it poses to human health. In most cases, the Government depends on the goodwill of mining companies to conduct studies and investigations and it has not been surprising that the conclusions or findings, in most cases, have been in their favor.

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<sup>10</sup> The operation of the Bougainville Copper Mine ceased due to the Bougainville Crisis in the early 1980s and remains closed to this day.

PNG's inability to monitor the environmental damage and punish the law breakers have allowed for more destruction of the country's environment. Such a blind eye on the part of the country compromises other national development and environmental objectives, such as ensuring the sustainable management of land resources, forests, terrestrial and environment environments.

### *Forest Resources*

Since independence, country had embarked on policies for the forests to be managed in a sustainable manner. Apart from the commercial perspective, the government recognized that all forest development must give due consideration for the need to protect the soils, water, fauna and ecosystems, and by the exigency to supply the basic needs of the people for fuel, food, water, and shelter.

Logging is widespread in the coastal areas. While much of the logs are exported to Japan and other South East Asian countries, some of it is used for the domestic building industry.

For instance in 1991, the Government endorsed the National Forest Policy and that was followed by the National Forestry Guidelines of 1993. This Policy and Guidelines were put in place to guide operation of the logging industry.

Within the framework of the National Forest Policy and National Forestry Guidelines, agreements are also reached between the logging companies and the government on the conditions and standards of their operations. Under this agreement, the logging companies also agree to terms, such as employment of landowners, development and/ or improvement of road infrastructure, and improvement of health and education facilities.

Despite the legal requirements, as well as the policies and guidelines, the logging companies are causing considerable damage to the environment. Clearing of the forest is resulting in massive deforestation; land degradation, such as soil erosion; and cause extinction to certain species of the country's rich biodiversity.

PNG must make sure that the logging companies undertake their activities within the set policies and guidelines as well as adhere to their conditions of operations. This means that the Government has the critical role to monitor their operations, including surveillance of exports.

The Government is fully cognizant of this important responsibility, however, the relevant Departments and Agencies, such as the National Forest Authority and the DEC do not have the manpower capacity, technical expertise, and the adequate resources to effectively monitor the operations of the logging companies. Further, there is also the need to undertake research and studies to determine the biodiversity and other loss, such as

pollution of river systems, pollution of and damage to drinking water source as well as the negative social impacts on the lives of the landowners as a result of the logging activities.

### **Measures and actions to overcome constraints**

PNG is faced with many challenges and constraints, which must be addressed to ensure the sustainable use, management and conservation of land resources. In this regard, PNG must, inter alia:

- (i) ensure that the technical Departments, Agencies, and Institutions are provided with adequate funding, competent and skilled manpower and other necessary resources to discharge their responsibilities towards achieving the objective of sustainable management and conservation of land resources.
- (ii) formulate policies and strategies to overcome the impediments associated the land tenure system to achieve integrated planning and management of land resources.
- (iii) make the landowners aware of the importance of the protection and conservation of natural resources and assist them to engage in activities, such as ecotourism, that will not only provide an alternative source of income for the people but it would also protect the rich biodiversity and other natural resources of the country.
- (iv) adopt strict environmental standards and ban the current practice of dumping wastes to the river system and the general environment.
- (v) ensure strict enforcement of its environmental laws and impose tough penalties on law breakers to prevent the destruction and pollution of the environment by project developers and other relevant entities.
- (vi) build the capacities of technical experts and provide adequate funding and other resources to undertake independent monitoring and research into the environmental damage caused by resource developers.
- (vii) undertake research activities and compile an inventory of the biodiversity resources that are being or are likely to be affected developments. In this regard, PNG requires funding assistance from GEF and other international funding agencies to fulfill this important task.

## **7. Energy resources**

PNG produces oil from oil reservoirs found in the Kutubu, Gobe and Moran areas of the Southern Highland Province. Commercial oil started flowing from the Kutubu and Gobe

projects in 1992 and 1998, respectively. The oil is being processed and exported through the Kutubu pipeline system.

In an effort to realize the country's downstream processing of oil for local consumption and also for exports, the Government decided to establish the Napa Napa Oil Refinery Project, which should come into operation this year (2004).

PNG also has significant reservoir of natural gas. Efforts to develop this resource, through the Queensland gas pipeline had not materialized. The large-scale development of this resource should benefit the country not only in terms of revenue generation but also contribute towards achieving global objectives, such as the reduction of greenhouse gas emissions in the atmosphere. The Government is seeking potential investors to develop this resource for export markets. However, such resource can also be developed and used for domestic consumption, as demonstrated by the Hides gas that began generating electricity for the Porgera Gold Mine in 1991.

PNG depends heavily on imported fuels for its domestic energy consumption. It is estimated that electricity comprises 24% of the total energy use in PNG. Interestingly, 46% of this electricity is used in Port Moresby. Table 8 indicates the sectoral use of energy in the country. The principal sectors of energy consumption are electricity generation, transport sector, industrial heating and cooling, and domestic heating and cooling.

**Table 8 : Sectoral use of energy in PNG**

<b>Energy use</b>	<b>Percentage of energy use (%)</b>
Total energy use in Papua New Guinea	24
Electricity use in Port Moresby	46
Renewable energy use in the country	40
Residential energy use	40
Energy use by private sector	60

Regarding electricity generation, the use of hydro backed up with standby diesel is commonly used in the provinces and mining sectors. In addition, co-generation of energy through the use of agriculture products, e.g. oil palm and sugar cane are important, but are relatively small in size.

The transport sector accounts for about 60% of all imported fuels into the country for domestic consumption. Road transport is a major user and air and water transport sectors use approximately 20% to 10%, respectively. Use of ethanol mixed with gasoline is a potential for future research.

For industrial heating and cooling, electricity is mostly used for air conditioning and refrigeration for all industrial, commercial services and government institutions. In crop drying industries, especially copra, tea and coffee, there is a major swing from diesel to wood for the drying process.

With respect to domestic heating and cooling, electric hot water heating (solar) accounts for 40% of typical large residential users' total energy requirements. Solar generated electricity from the sun is now becoming available, especially for lighting, cooking and other household applications. Wood is a principal cooking fuel for the low-income households in both rural and urban areas of the provinces. Development of the charcoal industry was promising in 1981, but now has limited application in the rural areas. Kerosene consumption grew sharply in the 1970s and is still an important energy source for cooking and lighting, especially in the rural areas.

The above scenario is reflective of the country's energy consumption from fossil fuel sources, however, there are also indications of the potential use of renewable energy source, such as solar energy, and hydro electricity. About 40% of the country's energy use is generated by renewable energy, especially hydro electricity.

Given that fuel consumption is an expensive exercise for the people and other energy users, it is important for the country to make strides in the use of energy from renewable energy sources, such as solar energy, hydro electricity, wind, and biomass. The potential to optimize the use of energy from these sources is attributable to the tropical heat of the sun for solar power generation; fast flowing rivers for hydro electricity; strong winds from the oceans and seas to generate wind mills; and the abundant biomass resources, such as forest and agricultural residues, animal wastes, and municipal wastes for power generation.

### **Policies, legal, institutional and administrative mechanisms**

PNG's energy use and development and other related issues fall within the purview of the Department of Petroleum & Energy. PNG does not have a clear policy on renewable energy, however the Government had put in place other policies that also embraces renewable energy generation and consumption in the country. Such policies includes the Gas Policy 1995, Rural Electrification Policy, Revised Petroleum Policy 1997, Pipeline Policy 1998, and Landowner Benefits Policy 1998.

These policies are pursued under certain Acts and Agreements, such as the Oil and Gas Act, the Napa Napa Oil Refinery Project Agreement, and the Gas Agreement.

The Department of Petroleum & Energy oversees the implementation these policies, Acts, and Agreements for the development of specific projects.

## **Development of environmentally sound sources of energy**

PNG is endowed with abundant renewable energy resources but the development of the resources is hampered by certain factors. The main one being that the energy technologies are very expensive and unaffordable. However, if these resources are tapped properly through appropriate advanced technologies, the energy supply from renewable energy sources will be more than the needs or requirements of the country.

The country does not have a policy for the renewable energy sector due to its concentration on oil as a source of generating revenue for the country. However, the current Government, with the support of Ausaid is currently undertaking the energy policy review to compile a work plan for the energy sector for the next five years. This will be completed early this year (2004) for implementation thereafter. In addition, the white paper on the energy policy statement will be conducted this year.

Despite the absence of nationwide development and use of renewable energy resources, few very successful projects, such as the Yonki Hydro-electricity Project generates electricity for the Highlands Region. Other successful renewable energy project includes, inter alia, Telikom's ongoing programme of powering the Repeater Stations through renewable energy resources, installation of solar powered vaccine refrigerators and VHF communication systems at the Health Centers. In addition, wind/solar hybrid lighting systems are being installed in rural areas for demonstration purposes. The equipment and facilities were given through a grant aid by the Chinese Government.

Many efforts by Papua New Guineans to establish renewable energy projects have not been successful. However, though relatively small, real developments in this sector are being undertaken by the private sector and church-run organizations.

The lack of success in this sector is attributable to certain factors, which includes, inter alia: the people who initiate projects have limited knowledge of renewable energy technologies, lack of consumers ability to manage and maintain the equipment, there is no training given to users to maintain the equipment according to the specifications, and there is no back-up service after installation by the supplier because supplier or manufacturer does not have an in-country office to provide back-up service.

### **Measures and actions to overcome constraints**

In order use renewable energy to achieve sustainable development and eradicate poverty in towns and cities as well as rural communities in the country, PNG must inter lia:

- (i) provide political support and clear direction in the development of and use renewable energy resources in the country, given its role in the achievement of sustainable development and eradication of poverty.

- (ii) provide adequate funding, technical expertise, and other resources needed by the Department of Petroleum & Energy to undertake constructive efforts in the development and use of renewable energy in the country.
- (iii) put in place renewable energy policy, which should provide the guidelines and direction in the importation of quality and relatively cheaper technologies into the country, given that renewable energy technologies are expensive and unaffordable.
- (iv) conduct public awareness and training programmes to ensure that the basic knowledge and skills of maintenance and operation of such renewable technologies are conferred to project coordinators and community leaders for the long term sustainability and success of the projects.

## **8. Tourism resources**

The PNG Tourism Promotion Authority (PNGTPA) was established by the Tourism Promotion Authority Act 1993. Consistent with the objective of this Act, the Government's Tourism Policy aims to develop the tourism sector into a significant economic sector within the context of national goals and objectives.

A key aspect of the Government's policy is the export-driven economic strategy, which is complemented by the Tourism Policy that is aimed achieving the following objectives:

- To substantially supplement national income and foreign exchange earnings.
- To encourage substantial employment opportunities and growth.
- To encourage substantial foreign and domestic private sector investment.
- To preserve, protect, and to promote a great appreciation of culture, heritage, history, and traditions of our country.
- To preserve, protect and sustain the biodiversity and natural environment of the country.

The Government's tourism policy and its objectives are pursued by the PNGTPA - the lead agency responsible for marketing of the tourism sector in key overseas markets. It falls within the Ministry of Culture & Tourism.

PNG has all the attributes of becoming one of the most famous and most attractive tourist destinations in the world. However, the tourism industry is a relatively small and yet is to be fully developed. One of the major impediments towards the growth and expansion of the tourist industry is the international perception of the law and order situation in the country.

It was estimated that visitor arrivals in the country spent approximately K405 million in foreign exchange earnings in 2002. Table 9 indicates the relatively small number of tourists to PNG in comparison with other PICs.

**Table 9 : Tourists arrival by source markets for selected countries: 2001**

Source Market	PNG	Fiji	Vanuatu	Samoa
Australia	26, 407	123, 606	29, 731	11, 538
New Zealand	2, 349	68, 293	7, 263	23, 790
USA	6, 050	58, 815		8, 720
Canada	845	9, 802		375
Germany	800	6, 104		1, 196
Japan	3, 803	26, 382	731	577
France	245	1, 901		
UK	1, 802	43, 393		1, 480
<b>Total</b>	<b>53, 842</b>	<b>397, 859</b>	<b>49, 446</b>	<b>88, 960</b>

Source: Papua New Guinea Tourism Promotion Authority, Destination Marketing Plan 2004

PNG's unique and beautiful tourist attractions includes the diving, fishing, trekking, WWII History, surfing, culture, bird watching, nature-based, carving and other unique natural and cultural heritage.

The PNGTPA is committed towards improving the current situation and has adopted an ambitious goal of making PNG's international tourist market grow from 30-50% and earn an estimated K500 million annually in foreign exchange for the next three years. As reflected in the PNG Tourism Promotion Authority 2004-2008 Corporate Plan, the PNGTPA had identified certain strategies to achieve this goal. Such strategies, includes, inter alia, adequate funding from the Government; industry partnership; political and policy support; human resource development in the tourism and hospitality sector; cooperation with Government Agencies, and Eco-tourism.

### **Funding from the Government**

Despite the foreign exchange generation of K405 million in 2002, the National Government's annual budgetary allocation was not sufficient carry out the programmes and activities of the PNGTPA. The PNGTPA requires sufficient funding from the Government to

implement its major promotional and marketing activities, carry out targeted road shows, and build internal capacity to facilitate for enterprise development.

The PNGTPA requires funding up to the tune of K20 million per annum to take full advantage of the opportunities currently available to increase the number of tourists to PNG.

### **Industry partnership**

Collaborative partnership needs to be strengthened between PNGTPA and the Tourism Industry. Joint working committees, consultations with the PNG Tourism Association and facilitating activities at enterprise level must be fostered to maximize industry input and participation in policy issues.

Training of manpower for the tourism industry constitutes a key agenda for collaborative participation. Government as well as industry support is necessary to ensure adequate supply of skilled manpower for the tourism industry in PNG.

### **Political and policy support**

Through this strategic, PNGTPA is aligning itself to vigorously implement the Government's export driven policy. The Government's approval is required in increasing funding and approval of industry incentives to encourage industry development.

With such support and assistance, the tourism industry has the potential of generating about K400-500 million for the next three years.

### **Human resource development in the tourism and hospitality sector**

PNGTPA will need to initiate a human resource development strategy for the tourism sector in order to ensure international standards of practice and services are maintained. A comprehensive Training Needs Analysis for the industry would provide the basis for developing and sourcing suitable programmes to meet the needs of the industry.

### **Cooperation with Government Agencies**

PNGTPA and the Department of Foreign Affairs must develop a consultative mechanism to ensure important policy matters and decisions affecting international travel are effectively communicated. Due to lack of consultation between the two Agencies, the PNGTPA views, for instance, the imposition of high visa fees as impediments to the growth of the tourism industry.

Further, Airport facility fees imposed by the Office of Civil Aviation are also seen impediments to the tourism industry.

The PNGTPA will have to work closely with the Department of National Planning and Monitoring to ensure its long-range tourism development plans are incorporated into the National Medium Term Development Strategy (MTDS).

### **Eco-tourism**

Many Papua New Guineans live in rural areas. They are comparatively not better off, often with heavy dependence on available natural resources. When their natural environment is depleted, their ability to provide for their basic needs is being compromised.

PNGTPA must address these issues through fostering tourism development at the community level, boosting the capacity of the Eco-Tourism Development concept to provide employments and viable source of income and resources to the people in communities.

PNG's eco-tourism activities cover a wide range of tourism related activities generally aimed at providing a significant balance between tourism development, the environment and cultural preservation, through meaningful community participation. The threefold participation is key to the process of eco-tourism development in the country.

### **Measure and actions to overcome constraints**

In order to realize full potential of benefits tourism can bring into the economy, PNG must, inter alia:

- (i) encourage private sector investment, both foreign and domestic, to develop the industry to its full potential by providing incentives and other benefits, such as tax holidays.
- (ii) address the law and order situation in the country to enable the expansion of the tourism sector, which has great potential to generate foreign exchange reserves and also generate significant employment opportunities for the people.
- (iii) open strategic offices in Europe, USA, and Australia and develop effective liaison with agents and strategic partners overseas and promote the country internationally as an attractive tourist destination.
- (iv) ensure that the Government provides adequate funding to the PNGTPA to develop the tourism industry to its full potential.

- (v) strengthen partnership through collaborative and mutually beneficial programs between PNGTPA and the private sector to enhance investment and development of the tourism industry.
- (vi) ensure that there is trained manpower requirements of the country that will satisfy the need of the industry and enable community participation in the tourism sector.
- (vii) ensure that the relevant Departments and Agencies, such as Foreign Affairs & Immigration, and Transport & Civil Aviation must work together to reinforce and enhance the achievement of PNGTPA's policy objectives.
- (viii) encourage the development of eco-tourism in rural communities of the country, given that it would not only generate employment and income for rural communities but it also encourages the protection of the environment and preservation of the country's rich culture.

## **9. Biodiversity resources**

The environments and biodata of PNG are extremely rich, diverse and unique. It is estimated that the country probably harbors between 5-7% of the world's biological diversity, which is remarkable given that the land mass of PNG constitutes less than 1% of the world's total land mass.

The country's biota has biogeographic similarities to West Papua, Solomon Islands, and northern Australia. The island is large enough to host many centers of endemism with more than 6,789 endemic species of plants and animals, the largest of any PIC.

Major vegetation types include coastal vegetation, mangrove forests, grasslands, swamps, savannah, monsoon forests, lowland tropical forests, upper montane forests, subalpine forests and alpine vegetation. The whole of New Guinea, of which PNG is a part, has 1,465 plant genera. Floristic diversity is highest in the lowland forests and decreases with increasing altitude.

Globally, important centers of plant diversity include the Kiunga region, Mount Wilhelm, Owen Stanley ranges, and Bowutu Mountains. Of these sites, only Mount Wilhelm is within a protected area network. Most threatened plants identified to date are those endemic to the country. A summary of PNG's biological diversity is provided in Table 10.

In general, the number of species of fauna diminishes with increasing altitude, with variable topography and precipitation, diversity decreases. Avifauna is particularly rich, with a total of 740 species recorded for PNG, which 76 species are endemic. They include the world's smallest and some of the world's largest parrots, the largest pigeons, all of the three species of cassowaries, and more than two thirds of the known birds of paradise.

**Table 10 : Species richness of key biodata**

<b>Group</b>	<b>Status</b>
Viruses, Bacteria, Algae	Poorly documented
Fungi	2, 390 species listed
Protozoans	Terrestrial Protozoans almost entirely unstudied
Invertebrates	300 species of coral identified, Very high species richness of sea pens, nudibranchs and crustacea. 300,000 species of insects estimated.
Fish	More than 3000 fishes in the region, including over 300 found in freshwater.
Amphibians	Frogs well represented with about 197 species described.
Reptiles	13 species of turtles and tortoise, approx. 195 species of lizards, 98 species of snakes and 2 species of crocodiles.
Birds	A total of 762 species of birds recorded with which 405 are endemic.
Seagrass	50 species of seagrass recorded
Mammals	Relatively impoverished although 71 species of marsupials, 2 species of monotremes and 75 species of bats have been recorded from the New Guinea area
Plants	Vascular plants include 15, 000 and 20, 000 species of ferns and flowering plants. Orchids are particularly diverse with well over 3000 species

Source: Draft National Assessment Report of the World Summit on Sustainable Development

The estuarine and coastal environments are endowed with dugongs, whales, dolphins, birds, turtles, crocodiles, fish, many invertebrate species such as mollusks, echinoderms and crustaceans. To date 3000 species of coral and well over 3, 000 species of marine fishes have been identified. The species richness of sea pens, nudibranchs and crustaceans may be the highest in the world. By contrast, the fresh fauna is poor, but fish, crayfish, turtles and crocodiles are important components in the lower and middle reaches of rivers and some lakes.

Information on the rate and intensity of decline of natural resources are scanty. Many marine organisms live in environments that are difficult to access and those organisms that have been collected have yet to be subjected to modern taxonomic analyses. Consequently, the knowledge of biodiversity in the country is limited. Recent work has also indicated that of much of the country has yet to be explored in terms of the biodiversity.

## **Ratification of the Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and other relevant international and regional conventions**

PNG is a Party to many international treaties and conventions that deal with biological diversity issues. These includes the Convention on Biological Diversity; Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); the UNFCCC; and the Kyoto Protocol. PNG is in the process of finalizing its instruments to ratify the Cartagena Protocol on Biosafety to the Convention on Biological Diversity and become a Party in 2004.

**[Papua New Guinea ratified the Convention on Biological Diversity on 13 June 1992 and became a Party on 16 March 1993. Also, Papua New Guinea acceded to the CITES Convention on 12 December 1975.] Footnote**

Under these and other related international treaties and conventions, PNG can secure financial and technical assistance to complement its national efforts in the protection and conservation of the biodiversity resources. Despite the rich biodiversity resource the country has, the benefits from these and other multilateral environmental agreements had been very little.

## **Policies, legal, institutional and administrative arrangements**

PNG's efforts to protect and conserve the rich biodiversity had been pursued under three acts, namely the Conservation Area Act, the National Parks Act, and the Fauna (Protection and Control) Act. Further, the Government adopted the Environment Act 2000, which also complements these Acts through a wide range of environmental tools and economic instruments to protect and conserve the biodiversity resources. Further, in an effort to support biodiversity conservation in the country, the Government established the PNG Institute of Biodiversity (PINBio) in 1998.

The above international conventions as well as national policies and legislations fall within the purview of certain Departments and Agencies, such as DEC, National Forest Authority, and the National Fisheries Authority. PINBio is administered through the coordination of the network by its Secretariat within the Conservation Division of EDC.

The DEC is charged with the responsibility to coordinate the implementation of the national policies on the protection and conservation of biological diversity. However, most of the responsibilities for conservation have been passed to provincial and local level governments who have neither the technical capacity nor other necessary resources to pursue the biodiversity objectives.

Further, there is lack of coordination between the national, provincial and local level governments in the formulation and implementation of policies. Coupled with this, there is also the problem of inter-Agency coordination among relevant Departments and Agencies in pursuing biodiversity objectives. In this regard, there is a need for better coordination and integration between all levels of government and also between relevant Departments and Agencies to effectively implement biodiversity policies and programmes.

Under the Convention on Biological Diversity, PNG is required to put in place its National Biodiversity Strategy, which has not been attended to due resource constraints and other factors. With the support of CBD Secretariat, GEF, and the World Bank and other organizations and entities, PNG must put in place its National Biodiversity Strategy, which is so critical to pursue its biodiversity objectives.

### **Protection and conservation of biodiversity resources**

PNG's rich biological diversity is being threatened by certain development activities, such as the mining projects, logging activities, agriculture activities; and the utilization of fisheries and marine resources.

Cognizant of the impacts of human activities on the biological resources of the country, PNG had put in place policies, programmes, and initiatives to protect and conserve this national heritage. These include, inter alia the PNG Logging Code of Practice; Forest Management Plan; Declaration of PNG Waters as a Whale Sanctuary in 2002; Mining and Sustainable Development Policy; and the Mine Closure Policy.

#### *Logging practices*

The widespread logging activities in the country are a serious threat to the country's terrestrial biodiversity resources. In an effort to regulate the logging activities in the country and pursue the conservation of the country's biodiversity resources, PNG adopted the Logging Code of Practice. The Code aims to enhance the sustainable forest management and reduce the impact of logging to the environment, especially the country's rich biodiversity resources.

In the 1990s, the DEC and other stakeholders, such as Conservation International, World Wildlife Fund (WWF), and the United Nations Development Programme (UNDP) undertook various reviews on conservation and protected area management, including the PNG's Needs Assessment and the PNG Country Study on Biodiversity.

From 1997-1999, a set of Rapid Biodiversity Assessment and Geographical Information System packages and conservation modeling tools were developed. The World Bank and AusAid funded the National Forest and Conservation Action Programme (NFCAP), which

ran through the 1990s and has been resurrected with a new series of programmes commencing in 2002.

Despite certain conflict of interests between Parties that hindered significant progress of the NFCAP, there were certain achievements, such as the feasibility studies on sustainable forest management and conservation, including a component on conservation planning and management.

PNG had identified certain areas of biodiversity importance as protected areas under the Ramsar and CITES Conventions, which includes, inter alia, the Tonda, Lake Kutubu, and Kamiali as Wildlife Management Areas. The Madang Lagoon is being promoted for listing under the RAMSAR Convention. As indicated earlier, the Mount Wilhelm area is part of a protected area network of the country.

This is an important approach towards the protection and conservation of the country's rich biodiversity resources. The realization of the Government's objectives in the protection and conservation of biodiversity resources depends on the cooperation between local landowners, the provincial authorities, and the national government.

Further, the government entities responsible for the management of these wetlands and protected areas require adequate funding, technical expertise and other support from both the provincial and national governments as well as the international assistance under the RAMSAR, CITES, and other related instruments.

#### *Agriculture activities*

Agricultural activities, both for subsistence and commercial also threatens the biological resources of the country. Agricultural activities, especially large-scale commercial farming requires the clearing of large areas of forests and grasslands, which are homes to the biodiversity resources.

Increased pressure on the land, through increased population and other factors reduces the area for fallows and results in unsound agriculture practices that affect the soil structure and fertility. Preservation of genetic resources, eco-systems and biodiversity must also be a priority for the sake of food security and long-term sustainability of agriculture.

In order to pursue the Government's sustainable agriculture objectives, the farmers and landowners must be fully informed in an awareness program of the long-term benefits of such conservation measures.

Further, biodiversity is not only affected by clearing forest and grasslands but also by the discharge of insecticides and chemical wastes to the environment. In this regard, the Government must ensure that the agriculture sector do not use harmful chemicals that will have negative impact on the biological resources of the country.

### *Mining projects*

The most serious threat to the terrestrial and marine biodiversity is from the disposal of chemical and other wastes from the mining projects. The mining projects in the country dump the dangerous chemical and solid wastes into the river system, which causes irreparable damage not only to the ecosystem along the river system but other terrestrial biodiversity resources, such as birds, insects and animals that feed on the river system.

This is not academic anymore, given the problems caused to the Fly River system by the Ok Tedi Mine, the former Bougainville Copper Mine, the Porgera and Tolukuma mines. Although there has not been any inventory of the damage to the country's biological diversity, it is clear to the minds of scientists and layman alike that considerable and irreparable damage had been done to the biodiversity resources of the country.

In an effort to minimize and mitigate the environmental damage by mining projects, the Government had put in place two important policies, namely the Mining and Sustainable Development, and the Mine Closure policies. The focus of these policies are on planning and management of mining projects so that their benefits can contribute to sustainable development of local communities and the country in general. The policies have been formulated with the assistance of the World Bank.

Further, recent actions to improve environmental performance, especially in mitigating the impacts of mining includes: the development of environmental and social impact guidelines and codes of practice; proposed policies on mine decommissioning and rehabilitation of mines; and efforts to encourage mining companies to link management components to their environmental plans.

The provincial governments, with the support of the national government, should make sure that the mining project and other economic activities do not compromise the protection and conservation objectives of the country's biological diversity.

### **Community involvement in the protection and conservation of biological diversity**

Most of PNG's land is customary and are held under traditional ownership arrangements. The implementation of international treaties and conventions as well as national laws and policies in the protection and conservation of biodiversity is contingent on the cooperation and involvement of landowners.

The traditional landowners prioritize the use of their land for agriculture, forestry, mining and other land use activities that generates short-term economic benefits. For instance, very often, landowners prefer logging than the protection and conservation of the forests that houses the unique biodiversity resources of the country.

Landowners' involvement and participation are important in the sustainable use, management and conservation of the country's rich biodiversity resources. In this regard, PNG had undertaken certain measures, which are aimed at empowering local communities in the pursuit of these objectives. Such initiatives include, inter alia:

- the establishment of the PNG Conservation Mama Graun Trust Fund with the mission to support biodiversity conservation and related sustainable development initiatives among forest landowners at the community level; and
- the National Forest and Conservation Action Programme (NFCAP) was established to reduce the massive logging activities in the country and encourage the conservation of the forest resources. The NFCAP encourages landowners to look at alternative ways of generating revenue for their families, such as eco-tourism activities.

Certain community-based NGOs are also involved in supporting the Government's efforts to encourage landowner and community participation in the sustainable use, management and conservation of the biodiversity resources.

### **Inventories of the country's biodiversity**

Conducting detailed inventories of existing flora, fauna, and ecosystems is vital to provide the data needed for the preservation of biodiversity. This work is made even more urgent in the context of mining, logging, urban settlements, and agricultural activities that threatens the rich biodiversity resources. Such activities would certainly contribute to the loss of biodiversity and hence the need to conduct researches and collect data of the biodiversity resources.

Soon after the 1992 Rio conference, the Government with the assistance of the relevant UN Agencies conducted a study into the biodiversity resources. The study identified certain areas of the country, which were hotspots for urgent government intervention for their protection. This information has however, become insignificant for developers and the relevant government agencies responsible for issuing permits perceived the development projects as more important than the preservation or protection of these biodiversity areas.

It is important to ensure that any land use activities do not contribute to the extinction of the country's rich biodiversity. Short-term economic benefits must not take precedent over the protection and conservation of biodiversity and allow for mining, logging and other activities to take place.

Collection of inventories for the country's biodiversity resources is important for purposes of protection, preservation, and conservation of the country's biodiversity resources. In this regard, the activities and programmes of PINBio must be strengthened to move the country forward in undertaking the necessary research into the country's rich biodiversity resources.

The PINBio addresses issues, such as biodiversity conservation and threats from unsustainable and detrimental human interventions, the need to develop appropriate policies on biological discovery, and biodiversity conservation and economic development. In an effort to realize these objectives, PINBio has 10 programs that are designed to undertake research and initiate policies and other related activities as indicated in Table 11.

**Table 11 : Programs and activities of PINBio**

<b>Program Nos.</b>	<b>Activities</b>
1.	Biodiversity Inventory-biodiversity surveys and collections, and documentation of indigenous knowledge.
2	Biodiscovery-drug discovery, herbal medicine, venoms and toxins, and aromatics.
3	Agrobiodiversity -agricultural plant genetic resources, agro-chemical development, and horticulture.
4	Biotechnology-biotechnology development and support in agriculture, livestock, forestry, quarantine, horticulture and human health, and support to development of biosafety measures.
5	Biodiversity conservation through carbon offsets and trade initiatives-protected areas and marine hotspots, reforestation, afforestation, reduced impact logging, agro-forestry, and alternative energy uses from biomass.
6	Biodiversity database and management system-facilitate efficient and effective information sharing and use.
7	Policy and legislation-development of appropriate policy regimes on research and development (commercial projects) reviews of current legislations on biodiversity, development of an appropriate International Property Rights (IPR) laws(s) on traditional knowledge and legal framework on contract agreements on access and benefit sharing from collaborative (contract) agreements.
8	Training and infrastructure development-capacity-building and strengthening, and technology transfer.

9	Education and awareness-public education and awareness on the PINBio and its development.
10	Conservation Areas -to protect and preserve high biodiversity areas of local, national, regional and global importance.

The Government supports the activities of PINBio with a budgetary allocation K500, 000.00 per year. The program areas of PINBio are very important and complex and hence require more support than the current level of funding to realize its aims and objectives.

The 10 programs are headed by senior Government Officials from line Departments and Agencies, and academics from the Universities. Most of them are not permanent members of the PINBio Secretariat and attend to the program commitments on voluntary basis and discharge their tasks as and when they feel like. As a result, there is no significant progress on the 10 program areas of PINBio.

In this context, there is a need for more recruitment of technical experts in the PINBio Secretariat to head the Program areas and expedite the implementation of its activities.

### **Measures and actions to overcome constraints**

In an effort to achieve the country's biodiversity objectives, PNG must, inter alia:

- (i) ensure the full implementation of the CBD and other related MEAs to pursue PNG's biodiversity objectives.
- (ii) provide adequate financial, manpower and other necessary resources to DEC, DAL, National Forest Authority, National Fisheries Authority and other Departments, Agencies and institutions so that they can effectively discharge their functions to pursue the biodiversity objectives.
- (iii) ensure that all relevant Departments and Agencies are working in a collaborative manner to support each other's efforts to achieve the overall biodiversity objectives of the country.
- (iv) urgently put in place its National Biodiversity Strategy under the CBD. PNG requires the support and assistance from the international community, namely the CBD Secretariat, GEF and the World Bank as well as other relevant stakeholders to undertake task of national importance.
- (v) provide financial, manpower and other resources to provincial level officers so that that are meaningfully engaged in ensuring the sustainable use, management, and conservation of the biodiversity resources.

- (vi) forge partnership and collaboration between national, provincial and local level governments in policy formulation and implementation in the country so that there is coherence and consistency at all levels to pursue the biodiversity objectives.
- (vii) ensure that full consideration is given to environmental issues and environmental best practice in policy formation and implementation to achieve sustainable agriculture and food security goals.
- (viii) immediately ban the dumping of wastes from mines and other developments to the river systems and the environment as such practices are detrimental to the country's rich biodiversity resources.
- (ix) forge close relations with the land owners so that they are meaningfully supportive of government policies to conserve and protect the rich biodiversity, rather than resorting to short-term economic gains.
- (x) institute studies in the country to collect biodiversity resource data and information that can be used by the Government to formulate of appropriate policies and programmes for the conservation and protection of biodiversity.
- (xi) increase the level of funding for PINBio and recruit competent technical experts to work with the PINBio Secretariat to implement its Programmes.
- (xii) adopt an integrated approach to its Oceans Policy towards marine conservation, coastal zone management and sustainable fisheries that takes into account land based and sea based factors as well as traditional knowledge and practices, scientific knowledge and traditional tenure systems.

#### **Part V : Cross-sectoral, new and emerging issues**

Since the adoption of the BPoA, certain new and emerging issues had been added to the menu of development challenges facing SIDS, which includes HIV/AIDS, malaria and other health issues, and eradication of poverty.

In order to deal effectively with these and other related development challenges, the United Nations adopted the Millennium Development Goals (MDGs). It is a strategic approach that underscores 8 priorities, including HIV/AIDS and poverty eradication and issues affecting the lives of the people in SIDS and other developing countries. Certain goals and targets were set for specific issues, which must be achieved by the year 2015.

At the heart of the MDGs is the eradication of poverty that must be addressed through social, economic and environmental instruments, such as the BPoA. This had been further reaffirmed at the WSSD Summit whereby the three pillars of sustainable development: social development, economic development, and environmental protection must be pursued in an integrated approach, given the inter-linkages and inseparable nature of the issues.

PNG's implementation of the three pillars of sustainable development by certain certain cross-cutting issues, such as good governance; law and order and security issues; capacity-building; enabling environments at the national level; trade and investment; health issues, such as HIV/AIDS, malaria, and tuberculosis; education; partnerships; financial resources; international agreements; awareness and communications; and information for decision making.

## **1. Good governance**

Good governance is a critical factor affecting PNG's implementation of sustainable development, including the BPoA. The good governance issues facing PNG includes, inter alia; the lack of sound environmental, social and economic policies at the national level; domestic institutions responsive to the needs of the people; the rule of law; corruption; gender equality; and an enabling environment for investment.

Given the importance and magnitude of good governance issues facing PNG, most of the issues, namely the rule of law; gender equality; and an enabling environment for investment are dealt with separately. However, this section focuses on sound environmental, social and economic policies at the national level; and corruption.

### **Policy formulation and implementation in PNG**

Sound policy formulation and implementation is affected by certain factors, such as the lack of inter-agency coordination and collaboration among relevant Departments and Agencies; lack of stakeholder consultation and involvement in policy formulation; lack of political stability; short-term politically driven policies; lack of budgetary support for implementation of policies; and the lack of involvement of provincial governments in policy formulation and implementation.

*Lack of inter-agency coordination and collaboration among relevant Departments and Agencies*

Sustainable development issues are cross-cutting and fall into the domain of many relevant Departments/Agencies. As such, it is crucial to engage all the concerned Departments and

Agencies in all stages of policy implementation so that they take carriage and implement programmes and activities that fall within their functions.

However, currently most Departments/Agencies do not seem to consult each other on issues of mutual interest. They tend to drive their policy agendas in isolation from other relevant Departments and Agencies. As a result, the relevant Departments/Agencies do not work in a mutually supportive manner to reinforce each other's efforts to achieve sustainable development objectives.

In certain instances, the lack of consultation and collaboration had resulted in adopting policies, and regulations that seem to contradict the objectives of other line Departments and Agencies.

Given the reinforcing nature of the three pillars of sustainable development, this compartmentalized approach to policy formulation and implementation must be addressed as a matter of priority so that all relevant Departments/Agencies can forge close working relationships on cross-cutting sustainable development issues.

#### *Lack of stakeholder consultation and involvement in policy formulation*

Policy formulation seems to fall within the confines of Government Departments and Agencies and there is hardly any consultation with other relevant stakeholders, such as the private sector, NGOs, and communities.

This top-down approach to policy formulation imposes policies on the relevant stakeholders and the people for implementation. This often results in them not understanding the policies objectives and hence demonstrate minimal support in implementation.

PNG must create an avenue whereby all relevant stakeholders are involved in the policy formulation process to gain their loyalty and support its implementation, which is a critical element in the achievement of sustainable development policy objectives.

#### *Lack of political stability*

Political instability is one of the factors that had seriously affected PNG's implementation of its sustainable development commitments as well as other national development policies. Frequent change of Government and also Ministerial reshuffles had seriously affected the formulation and implementation of sustainable development policies in the country.

Governments and leaders had not survived long enough to see their policy initiatives implemented. Incoming Governments and leaders tend to have their own policy

approaches and commence another process of policy formulation. This had been an ongoing trend since the country's independence.

The political instability also permeated into the Government Departments and Agencies. This begins with the appointment of political cronies to head Government Departments and Agencies and statutory bodies. Appointment of people without necessary credentials have resulted in mismanagement of Departments and Agencies. It also creates instability within the Departments and Agencies.

The Departments and Agencies are embattled with the problems caused by political instability and as a result, they do not discharge their functions to implement sustainable development and other national development objectives. The ultimate losers are the people of PNG

#### *Short-term politically driven policies*

Very often, certain policies are formulated and implemented for political reasons. This is often seen immediately prior to elections to convince voters.

Such policies are not consistent with long term development policies of the country. In most cases the policies short-lived and very expensive to be sustained in the long run.

#### *Lack of budgetary support for implementation of policies*

The Department of National Planning & Monitoring is charged with the mandate to develop broad national development policies, such as the MTDS whilst other Departments and Agencies also develop their own specific sectoral policies.

In most cases, such policies, especially at the provincial level do not get budgetary allocation support needed for implementation. The budgetary process, especially the expenditure plans do not seem to be linked to sound policies, designed to achieve specific objectives.

As a result, the country's scarce budgetary resources are used on an ad hoc basis, at the disposal of Governments, both at provincial and national levels, to pursue unplanned, unsustainable, and politically motivated policies and projects that are not linked towards achieving national development objectives.

#### *Involvement of provincial governments in policy formulation and implementation*

Currently, the provincial governments are not meaningfully engaged in the formulation of national policies, which eventually fall within their purview for implementation. In order to ensure better coordination and implementation of policies, the provincial governments must

be involved in all stages of policy formulation. Further, their involvement in the formulation of policies generates a sense of ownership to policy initiatives and makes them accountable for successful implementation at the provincial and community levels.

Apart from this, the provincial governments seem to drive their own policy agendas, which are not closely linked to national development policies. This represents a situation where the national policies are not supported and implemented at the provincial level.

In order to ensure effective implementation of national policies, PNG must make sure that provincial government system must have supportive policies and programmes that are designed advance the objectives of national policies.

#### *Lack of policy monitoring and evaluation*

An important element of policy formulation and implementation is the monitoring and evaluation aspects of the policies. This is critically important to make assessments of the success or otherwise of policies. This can be a useful tool to make necessary adjustments to ensure its successful implementation.

Government Departments and Agencies, such as National Planning & Monitoring seem to be engaged in policy formulation and does not monitor and evaluate the implementation of policies. Hence, the need to establish a mechanism that will monitor and assess the implementation of policies, as an integral part of policy formulation and implementation process in the country.

### **Corruption**

PNG is one of the resource rich countries of the world, with many world class copper and gold mines, timber resources, many agricultural commodities, and has the richest fishing grounds in the world. With such rich resources in abundance, it is ironic that the country continuous to face financial and economic hardships. There is widespread poverty among the people both in urban centres and also at the community level.

At the heart of issues affecting PNG's implementation of sustainable development is the issue of corruption, orchestrated by corrupt elites that have looted millions, (or of not billions) of kina that should have been used for the development and prosperity of the country. Most PNG's politicians and bureaucrats have used their positions for personal gains, and the issue of national development and collective benefits had taken the back seat.

Social services, such as schools and health services are deteriorating. Existing infrastructures developments are falling apart and could not be maintained or improved, let alone development of new facilities. Law and order will soon get out of control nationwide,

both in rural and urban areas. All indications are looming in the horizon for PNG to run into serious national crisis in the not so distant future.

Mismanagement and abuse of power in Government Departments/Agencies have eroded the confidence and effectiveness in the discharge of their functions. Many (or if not all) statutory bodies that were established to generate revenue for the country have been liquidated or declared bankrupt.

Allowing corruption to breed in the bureaucratic and political cycles in the country seriously threatens the stability and security of the country. It also undermines the democratic institutions, which were put in place to respond to the needs of the people, including the pursuit of national development objectives as well as sustainable development.

Corruption can only be meaningfully addressed with serious political will by the country's politicians, which should give a clear signal to the bureaucracy to follow-suit. Adequate funding, manpower and other necessary resources must be provided to Departments and Agencies responsible for fighting corruption, such as the Ombudsmen Commission.

PNG should also sign and ratify the recently adopted UN Convention to Combat Corruption, which would signal PNG's commitment towards addressing this issue.

PNG's effort to address this issue should be supported by the international community, especially bilateral partners, UNDP and other UN Agencies, as well as the Commonwealth Secretariat and other stakeholders.

### **Measures and actions to overcome constraints**

In order to address good governance issues facing the country, especially with respect to the country's approach to policy formulation and implementation and the fight against corruption, PNG must, inter alia:

- (i) encourage inter-agency cooperation and collaboration in policy formulation and implementation of sustainable development.
- (ii) create a mechanism to consult and engage the views of relevant stakeholders, such as NGOs, private sector, and communities in the formulation of sustainable development policies.
- (iii) maintain political stability in the country so that the Government can formulate and implement sustainable development policies.

- (iv) put in place a credible mechanism to appoint people with the necessary credentials to leadership positions in Departments and Agencies.
- (v) put to good use scarce resources for implementation of sustainable development policies and programmes, rather than politically driven policies.
- (vi) engage close consultation with provincial governments on policy formulation so that they are fully supportive in the implementation of national sustainable development policies.
- (vii) establish a compulsory reporting mechanism in the Department of National Planning & Monitoring that will monitor and evaluate the success or otherwise of sustainable development policies.
- (ix) take concrete actions and measures to fight corruption in the country. International assistance and support from development partners would be indispensable towards addressing this critical issue affecting the development of PNG.
- (x) sign and ratify the UN Convention to Combat Corruption.

## **2. Capacity-building and cooperation**

In most areas of sustainable development, PNG had put in place the necessary legal instruments and institutional mechanisms to implement its sustainable development issues, including the BPoA. Despite the establishment of the requisite legal and institutional requirements, PNG had not been successful in pursuing the sustainable development agenda and other development challenges facing the country.

Series of legal and institutional reforms had been made in the country, with the view to making the government system function effectively to meet its development challenges. However, such efforts do not seem to produce the intended output due to capacity constraints: lack of adequate skilled manpower, technical and financial resources.

Firstly, the Government Departments, Agencies and Institutions, including the government machinery at the provincial and locals do not have the necessary manpower to formulate and implement sustainable development policies.

This is a serious issue that must be addressed through, for instance, the development of comprehensive human resource development strategy. Within such a framework, the respective government Departments, Agencies, and institutions must have on the job training mechanisms to train their manpower to required levels to effectively discharge the sustainable development functions.

PNG should utilize the technical experts from regional organizations, such as SPREP, SOPAC, and Forum Secretariat to conduct training workshops, and seminars to enhance the technical capacity of Government officials to competently discharge their functions. Alternatively, an arrangement should be put in place for the Government officers to be seconded or attached to these regional organizations and institutions to gain necessary skills and experience to enhance their capacities.

Similar assistance and/or arrangement could also be secured with other international development partners, such as the UN Agencies, and Commonwealth Secretariat

Further, there must be effective participation by the people for sustainable development to take place at the community level. In this regard, PNG must embark on awareness programmes, workshops, and seminars to impart skills and knowledge to local people so that they can participate effectively on sustainable development initiatives at the community level.

Secondly, certain Departments and Agencies have a number of skilled manpower, however they often face financial and other resource constraints to effectively discharge their duties and obligations.

For instance, DEC must undertake independent investigations and monitor the certain economic activities, such as logging, mining, and fishing activities that affect the environment. However, due to lack of financial and other resources constraints for DEC officials to project sites to investigate and monitor their activities. Consequently, the relevant laws and regulations that were put in place to control their activities in the country are often ignored.

In this regard, the Government Departments and Agencies must be provided with the necessary financial and other resources to discharge such important functions. International assistance and support are also critical to complement the Governments efforts.

PNG has three levels of governments: the local, provincial and the national levels. At the national level, the Government is involved primarily in policy formulation. The provincial and local level governments are predominantly involved in the implementation of policies. Also, important functions of enforcement, monitoring, and implementation are decentralized to the local and provincial levels. However, in most cases the transfer of such functions is not accompanied by the allocation of skilled manpower, financial and other resources to discharge the functions.

The capacity of agencies at the provincial and local government levels to handle important environmental and conservation issues, for example forestry projects, must be considered as a high priority by the national government and by donors providing funding. Capacity building at the provincial and local government levels in environmental management and conservation is a must.

### **Measures and actions to overcome constraints**

In order to build the capacity needed to achieve sustainable development in the country, PNG must, inter alia:

- (i) increase training of technicians, scientists and decision-makers to cope with all aspects of planning and implementing programmes of sustainable development. PNG must seek the support and assistance of the international community, including the regional organizations in this endeavor.
- (ii) initiate training schemes and human resource development programs must be developed to meet the manpower needs of each sector both at the national and provincial levels.
- (iii) engage technical experts from regional and international organizations, such as SPREP, SOPAC, UN Agencies and Commonwealth Secretariat to train the much-needed human resources for sustainable development in the country.
- (iv) ensure that the national and provincial governments must work together to provide the necessary manpower, financial and other resources to implement important decentralized sustainable development functions at the provincial level.
- (v) enhance capacity to ensure effective surveillance, monitoring and enforcement of laws and regulations in the resource development sector, especially mining, forestry and fisheries sectors.
- (vi) improve human and financial capacity at all levels of government in environmental and resource management
- (vii) encourage all major groups (particularly women and youth at the community level) through education, training and awareness to increase their participation in the implementation of sustainable development at the community level.

### **3. Enabling environment at the national level**

The effective implementation of PNG's sustainable development commitments is contingent on the provision of an enabling environment at the national level. Certain issues that need to be addressed to provide a conducive environment for sustainable development in the country include, inter alia; the establishment of a national body or office to coordinate the implementation of sustainable development in the country; the lack of overall as well as sectoral sustainable development strategies; lack of integrating sustainable development principles into sectoral policies; lack of proper administrative and institutional structures for formulation and implementation of policies, strategies and plans; and the provision of a conducive legislative environment.

Firstly, there is a perception decision and policy makers in PNG that sustainable development is synonymous with environmental issues. As such, sustainable development issues are deemed to fall within the functions of DEC.

However, taking into account of the economic and social dimension of sustainable development, there is a need for the establishment of a central coordinating mechanism that is charged with the overall coordination and implementation of sustainable development in the country. This mechanism should enhance inter-agency coordination and collaboration among relevant Departments and Agencies to forge a close working relation to pursue the sustainable development objectives of the country.

Secondly, coupled with the misconception, PNG does not have a National Sustainable Development Strategy to implement its sustainable development commitments. This must be attended to as a matter of priority to fulfill the outcome of the JPoI, particularly Chapter XI, H. (b), which calls for states to "take immediate steps to make progress in the formulation and elaboration of national strategies for sustainable development and begin their implementation by 2005."

Thirdly, most of the sustainable development issues are cross-cutting and are interlinked to other pillars of sustainable development. However, in most cases, the Departments and Agencies seem to work in isolation and do not consult others on issues of mutual concern. As a result, there is no system-wide coordination and implementation to maximize the achievement of sustainable development objectives.

PNG can address this issue by ensuring that the principles of sustainable development are integrated into sectoral policies and strategies of relevant Departments and Agencies.

Fourthly, PNG's performance in the implementation of sustainable development is affected by the lack of proper administrative and institutional structures in the country. For instance, the relevant Departments and Agencies, such as DEC, Foreign Affairs, and National

Planning and Monitoring should Branches or even Divisions dealing with sustainable development issues.

Sustainable development issues are dealt with on an ad hoc basis and this speaks in volumes why sustainable development, including the BPoA is not being effectively pursued in the country. It also accounts for reasons why PNG is yet to put in place its sustainable development policies and strategies.

Sustainable development is implemented by the provincial level administration. However, the provincial level bureaucracies also do not have offices responsible for coordinating the implementation of sustainable development at the community level.

The lack of clear administrative and institutional infrastructures creates a disorganized situation that seriously affects PNG's implementation of sustainable development. This situation must be addressed as a matter of urgency for the country to advance forward in implementing its sustainable development commitments.

Finally, a conducive legislative environment is critical for sustainable development to occur in the country. This is particularly relevant for the resource development activities and other sectors where laws and regulations guide their operations to uphold the principles of sustainable development.

Coupled with good the legislations and regulations, the Government Departments and Agencies must monitor their activities and have the capacity to prosecute law breakers that compromise the long term sustainable development objective of the country. These important functions of the Government had been hampered by lack of capacity constraints.

PNG is challenged with the task of not only putting in place good legislations and laws but also the mechanism to enforce them.

While the implementation of sustainable development is the responsibility of the country, PNG requires the assistance of the regional organizations, institutions, international organizations, bilateral partners, NGOs and other relevant stakeholders assist PNG to address the above and other related issues to ensure environmental sustainability in the country.

### **Measures and actions to overcome constraints**

In order for the country to provide a conducive environment for its sustainable development, PNG must, inter alia:

- (i) put in place a national institution that is designated to coordinate nationwide policy formulation and implementation of sustainable development in the country.

- (ii) formulate and implement a National Sustainable Development Strategy by 2005 as stipulated in the JPol. This will provide an important step forward for PNG to pursue its sustainable development objectives.
- (iii) incorporate guiding principles for sustainable development into all sectoral policies.
- (iv) establish a clear linkage between the national level and the provincial and local level of governance in the implementation of sustainable development in the country.
- (v) improve the administrative and institutional structures to implement sustainable development policies, strategies, plans and programmes.
- (vi) put in place good laws and regulations as well as the monitoring and enforcement mechanisms to safeguard and promote sustainable development in the country.
- (v) develop its own national targets and indicators as a way to measure the country progress in addressing its sustainable development needs, taking into account of the global targets and indicators in the MDG and the JPol.

#### **4. Law and order and security issues**

The deteriorating law and order and security situation in the country seriously affects the PNG's environmental, social, economic and other aspects of development. It also discourages foreign direct investment in the country.

Most of the criminal activities and other social behavior, especially in towns and cities, are caused by unemployed youths. This issue could be effectively dealt with through the creation of employment opportunities. Foreign investments and expansion of domestic private sector would assist to reduce the magnitude of this problem.

The tribal conflicts in communities results in massive destruction to properties and loss of lives. This is exacerbated certain international and cross-boarder activities, such as small arms and illicit drug trade. For instance, the small arms trade in the Asia Pacific region had contributed to the up-rise of the Bougainville Crisis.

As the small arms make their way to the country through neighboring countries, such as Australia, Indonesia, and Solomon Islands, PNG must seek the cooperation from the neighboring countries to address this issue that threatens the security of the country. International support from the UN Agencies, such as UNDP and other relevant stakeholders would enable PNG and its neighboring countries to address this matter.

Further, in light of the escalating terrorism activities in the world, PNG must not allow for its territory and immigration laws to be abused by citizens and non-citizens involved in such activities. Failing to address such activities might lead to possible terrorist attack in the country and other neighboring countries, such as Australia.

The Department of Police, Justice and other agencies that are charged to address these issues are hampered by resources constraints. In this context, international assistance from countries, such as Australia, and bilateral and multilateral partners are vital to address this issue of critical importance to the security of PNG and other neighboring countries.

### **Measures and actions to overcome constraints**

In order to address the law and order and security issues facing PNG, the country must, inter alia:

- (i) create more employment opportunities for the unemployed youths to reduce the level of criminal and other anti-social activities in the country.
- (ii) give more resources and other assistance to the law enforcing agencies, such as the Department of Police and Justice to combat the law and order situation in the country.
- (iii) solicit the assistance of other neighboring countries, such as Australia, Indonesia, and Solomon Islands to combat the cross-boarder illicit activities, such as small arms and illicit drug trades.
- (iv) solicit financial and other assistance from the international community, both bilateral, regional and international organizations to support the country's effort in addressing this issue of national importance.

### **5. Finance resources**

Given enormity of the sustainable development challenges and other national development issues facing the country, PNG is indebted to the financial support and assistance from the international community to respond to the needs of the people. PNG receives financial support and assistance from bilateral partners; multilateral organizations, agencies and institutions; NGOs, and Churches.

PNG is a recipient of financial support and assistance from developed country partners, such as Australia, New Zealand, Japan, France, United Kingdom, and other countries. China is a developing country and also provides financial support to the country.

PNG receives financial support from international financial institutions and organizations, such as World Bank, International Monetary Fund, Asian Development Bank, Global Environmental Facility, UNDP, and European Union. Certain multilateral arrangements, such as the Cotonou Agreement enables the country to access financial support and assistance for its development purposes.

Most of the bilateral and multilateral financial resources are channeled through the government system to pursue sustainable development and other national development objectives. However, due to lack of manpower capacity and other constraints, PNG has not been able to fully utilize such international financial assistance.

During a period when the country is undergoing financial and economic hardships, PNG can not afford not to utilize such gesture of goodwill to provide much needed to service its people. Hence, the need for PNG to urgently address the bottleneck situation in respective Departments and Agencies that affect the effective utilization of international financial assistance for the development of the country.

Certain bilateral partners, especially Australia and Japan channel their financial assistance to bilateral programmes and projects, such as AusAid and JICA, respectively. In this respect, it is important for PNG to ensure that their assistance under such bilateral programmes are tailored to meet the development objectives of the country.

There are many international sources of financial assistance, such as those mentioned above that provide financial support to PNG to pursue its sustainable development objectives. However, the quality and quantity of assistance PNG receives from such as sources depends on the active involvement and effective utilization of such assistance.

PNG must not wait for international support and assistance to come into the country but to become proactive and aggressively solicit much-needed financial assistance for the development of the country.

An important factor that plays to PNG's disadvantage is the lack of knowledge of the procedures and processes for securing such assistance from international multilateral institutions. International and regional organizations, such as SPREP, SOPAC, UNDP, and the World Bank should conduct training workshops, and seminars for Government officials to acquire these important tools to optimize the utilization international financial assistance for the country.

PNG also receives certain financial assistance from NGOs, such as the International Red Cross, Salvation Army as well the churches. Financial support from NGOs and churches are channeled directly to communities on important sustainable development projects.

The NGOs, especially the churches are doing a remarkable job in providing much-needed service to the people. As their activities are often hampered by financial and other constraints, PNG must give necessary financial and other assistance to support their good work in the development of the country. International support and assistance are also crucial towards achieving their objectives.

While PNG fully appreciates their valuable contributions, the Government does not seem to work closely with them to ensure that such assistance are put to good use to achieve broad national development objectives. In this regard, PNG must work closely with them and identify specific priorities and objectives that can be achieved with their assistance. In this way, the Government would guide the international financial assistance to contribute meaningfully towards achieving broad national development goals.

### **Measures and actions to overcome constraints**

In order maximize the utilization of financial resources for the sustainable development of the country, PNG must, inter alia:

- (i) address the bottleneck situation in the respective Departments and Agencies so that international financial assistance are being used effectively for sustainable development programmes and activities in the country.
- (ii) ensure that the bilateral assistance programmes, such as AusAid and JICA are contribute towards the achievement of sustainable development and other national development priorities.
- (iii) actively solicit financial assistance from international organizations and agencies for sustainable development programmes and activities in the country.
- (iv) secure the services technical experts in international and regional organizations, such as SPREP, SOPAC, UNDP, and World Bank to conduct training workshops and seminars on the procedures and processes of securing international financial assistance from major donors.
- (v) work closely with NGOs and churches to ensure that their activities and projects also contributions towards the attainment of PNG wider sustainable and other national development priorities.

### **6. International agreements**

PNG is a Party to many bilateral and multilateral agreements, treaties and conventions. Firstly, the bilateral agreements and treaties identify areas of cooperation between PNG and other countries, such as Australia, New Zealand and Japan. Such arrangements

should be utilized to its fullest advantage to secure much needed development assistance for the country.

In most cases, the developed countries, such as Australia and Japan have policies and programmes, under which such assistance are given to the country. In this context, PNG must identify specific national development goals and priorities, which can be achieved through the utilization of such assistance. Without any clear guidance, such valuable assistance may not contribute towards the attainment of overall national development objectives.

Secondly, PNG is a Party to many multilateral treaties, conventions and protocols that deal with BPoA issues and other issues in the social and economic fields. PNG is also a member of many regional and international organizations. By virtue of being a Party or member to these entities, PNG can draw financial and technical support to implement their programmes and activities in the country.

For instance, the Rio Conventions, namely the Convention on Biological Diversity, and the Climate Change Convention has inbuilt financial mechanisms as well as technical support to implement them. The same is true for other international agreements in the social and economic fields.

With the support of the Secretariats of the treaties and conventions as well as competent regional or sub-regional organizations, PNG should utilize these sources of international support to implement sustainable development, including BPoA, and the other national development challenges.

It is important to note that the quantity and quality of support and assistance that PNG gets from these arrangements depends entirely on the efforts of the country. In this context, PNG must improve its current approach of waiting for them to come to PNG and assist at their will with whatever little resources they can find. PNG must be proactive and aggressively solicit or even demand for support and assistance to address our sustainable development objectives.

In order to draw assistance and maximize benefits from its membership to such entities, PNG must have clear policies, strategies, and programmes designed to achieve the objectives of those treaties/conventions and organizations. PNG must also establish institutions/offices that are clearly charged to coordinate implementation in the country.

Undertaking such actions gives clear signals of the country's commitment towards implementing regional and global agendas, such as sustainable development. In this context, PNG must take concrete actions in ensuring that then necessary policies, strategies, programmes as well as legal and administrative institutions are established in the country to take effective carriage of implementation.

PNG must also make its own contributions through the provision of financial, manpower and other logistical support to implement sustainable development. Such a bipartition approach ensures the sustainability of initiatives in the long run.

### **Measures and actions to overcome constraints**

In order for the country to maximize benefits from being a Part to many international treaties and membership to many international and regional organizations and institutions, PNG must, inter alia:

- (i) ensure that financial, technical and other forms of assistance from bilateral, multilateral and other sources, such as NGOs and churches contribute towards the attainment of sustainable development and other national development priorities.
- (ii) engage into constructive relations with Secretariats of international treaties and organizations/institutions to maximize financial, technical and assistance provided to members countries for sustainable development.
- (iii) put in place clear policies, strategies and programmes to implement sustainable development in the country.
- (iv) establish the required administrative and institutional machinery to implement sustainable development issues in the country.

## **7. Awareness and communications**

PNG's effective implementation of sustainable development, including the BPoA, is attributable to its awareness and communication with all relevant stakeholders to achieve such commitments.

PNG had signed and/or ratified certain sustainable development treaties and conventions as well as programmes, including the BPoA. This must be followed-up with policy strategies, programmes and projects to pursue the sustainable development objectives.

In most instances, PNG had not fully implemented the commitments and obligations that the country is required to implement. This, in part, is attributable to the lack of awareness on the part of technical Departments and Agencies of such commitments that must be implemented in the country. In this regard, the Department of Foreign Affairs & Immigration as well as other relevant entities must ensure that the implementing agencies are made aware of the international commitments so that rational actions are taken to implement them in the country.

Further, the Departments and Agencies seem to be working in isolation from each other on cross-cutting issues that fall into their respective functions. As a result, there is no integrated approach to the pursuit of such cross-cutting issues. This situation can be improved through effective communication among relevant stakeholders to discharge respective functions to pursue sustainable development issues in a holistic manner.

An important aspect of achieving sustainable development is the demonstration of political will by the politicians, especially at the national and provincial levels. This is important because with political will comes the commitment necessary resources needed for the country to implement its national obligations.

Many (or if not most) politicians are not aware of the national obligations to implement the sustainable development commitments in the country. This situation must be addressed to make the politicians aware of such commitments so that they can give the necessary political support to implement of sustainable development in the country.

PNG's implementation of sustainable development had also been affected by the lack of awareness and engagement of the people at the community level. This situation must be addressed through an effective communication and awareness programmes for the local communities to participate in the pursuit of the country's sustainable development commitments.

While addressing the awareness and communication issues affecting the country's implementation of sustainable development, PNG must also learn from successful policies, programmes and projects in other SIDS to address its own sustainable development issues. This could be done through developing appropriate communication strategies to promote lessons learnt, success stories and replicate sustainable development projects.

### **Measures and actions to overcome constraints**

The above awareness and communication issues must be resolved for PNG to effectively implement its sustainable development commitments. In this regard, PNG must, inter alia:

- (i) become fully aware of the sustainable development commitments and obligations that the country is required to implement.
- (ii) ensure that the technical Departments and Agencies whose functions relate to specific sustainable development issues to become fully aware and take charge of implementation in the country.
- (iii) ensure an effective communication network among relevant stakeholders to pursue the sustainable development issues in an integrated manner.

- (iv) ensure that the politicians, both at the national and provincial levels, are fully aware of the sustainable commitments and obligations to secure the necessary political support and resources to implement them in the country.
- (v) undertake an effective public awareness and communication activities at the community level so that the people are involved in the implementation of sustainable development.
- (vi) learn from the success stories of other SIDS countries in addressing sustainable development issues so that such projects can be replicated in the country.

## **8. Trade and investment in PNG**

The development of PNG, including the achievement of sustainable development, depends very much on its performance in the area of trade and investment. There are certain issues, such as capacity-building and other issues that must be addressed to enhance trade and investment in the country.

### **Investment**

The IPA is primarily responsible for promoting the country's foreign investment potential. It formulates and implements investment policies and also administers Laws and Acts pertaining investment activities in the country, such as the Investment Promotion Act.

PNG is one of the resource-rich countries of the world. PNG has abundance of rich in natural resources, such as minerals, gas, oil, forestry, agricultural commodities, fisheries and marine resources. Foreign finance and investments are vital to develop the rich natural resources.

Since the country's political independence, significant FDIs were concentrated in the exploitation of the country's rich mineral resources. This has been followed-up by the petroleum industry. As resources in these industries are non-renewable, the Government embarks on the policy to reinvest the revenue it gains from these highly profitable sectors into the development of its human resources, small and medium sized industries and industries which add value to locally available resources.

The Government places priority on the downstream processing of these resources to achieve economic growth. The development of the nation's vast renewable resources, including forests, fisheries and agricultural commodities, is seen as fundamental to this objective. Included in this sector are businesses which cover the manufacture of clothing,

textiles, leather goods, food, timber products, footwear, chemicals, plastic products, paper products, automotive parts, and so on. Village eco-tourism and large scale resort developments are also targeted.

PNG welcomes foreign finance and investments in the country, which are likely to generate significant benefits to the country, including the generation of greater foreign exchange earning, economic growth, employment opportunities, technology and skills transfer and an increased standard of living.

The Government has a range of direct and indirect taxation based incentives for large and small proposals. For instance, in the early stages of an investment proposal, the Government has a feasibility study contribution scheme which assists qualifying investors with the costs of conducting such studies. The Department of Commerce and Industry administers this scheme and another important incentive offers a five year tax holiday to qualifying goods and services.

Certain progresses are evident in the development of its rich fisheries resources, while in other sectors, especially the agriculture sector has not seen any significant growth. Notable factors that attribute to this situation includes, inter alia; unfavorable international markets conditions, lack of investment by foreign investors, lack of transport and communication, lack of manpower capacity-capacity, lack of financial and technical capacity, and frequent natural disasters. The law and order situation in the country also affects foreign investment in the country, as in Part V (4).

Firstly, the unfavorable market conditions, especially the steady decline in the prices of agriculture commodities have had negative impact on the investment climate in PNG. Under this uncertain market situation, foreign investors are not attracted to investing in commodities producing very little economic returns from their investments. Further, it also affects the moral and interest of local producers when commodities they work hard for do not generate revenue needed to improve their living standards.

Given the importance of agricultural commodities and other resources for eradication of poverty and other achieve social, economic and environment goals, PNG must adopt good policies and offer incentives to encourage foreign investment in these important sectors. Further, PNG requires the support of developed county partners, international organizations/institutions and other relevant entities to encourage foreign investment in these important sectors.

Secondly, the deteriorating transportation and communication services affect foreign investment in the country. The roads, bridges, and wharves are not being maintained and under such situation, it is almost difficult to contemplate foreign investment in rural areas of

the country. Further, communication services within PNG and also from overseas to PNG do not seem to function effectively for foreign investors to keep in contact with their businesses.

PNG must not expect foreign investment to occur without a good transportation and communication system in the country. In this regard, PNG must address these issues of critical importance for foreign investments to take place in the country.

Thirdly, PNG lacks well trained and experienced manpower resource needed for investment activities in the country. As a result, foreign investors seem to engage foreigners in jobs that should be competently handled by PNGeans. This situation does not help in resolving the rising unemployment in the country. In order to address this issue, PNG must embark on a manpower development programme that will produce specialized manpower resources to meet specific manpower requirements for investment activities in the country.

Fourthly, while encouraging foreign investment in the country, it would be important for PNG to generate domestic financial resources to develop its natural resources. However, since the domestic financial sector is very small, it is very difficult for the Government to find the kind of financial resources needed to develop its rich natural resources.

In an effort to address this situation, PNG requires the support of bilateral partners, international organizations and financial institutions as well as the domestic private sectors to make available much-needed financial resources to develop the natural resources, which is critically important for the attainment of sustainable development and other development goals.

PNG is prone to many natural disasters, such as droughts and frosts, which had significantly affected natural resources, especially the production of agricultural commodities and food crops. Poor production due to such natural disasters resulted in the fall of revenue generated from the export of such commodities, which consequently affects the country's ability to pursue sustainable development and other national development objectives.

When PNG's economy is severely affected by natural disasters, PNG requires the kind assistance and support of the international community with financial and other necessary resources to sustain the implementation of BPoA and development programmes.

## **Trade**

PNG's economy depends heavily from revenue generated from the exports of minerals, oil, fisheries and marine products, timber and agricultural commodities. The revenue generated from the export of such products had been affected by the declining exchange rate,

devaluation of currency, and the never-ending external debt as well as the pressures of globalization and trade liberalization.

Since the floating of PNG currency and its subsequent devaluation in the mid 1980's, the exchange rates had been on the decline. Further, the depleting of the foreign reserves due to large external debts and other factors also affects PNG's trade performance. These had culminated in negative balance of trade with major trading partners, such as Australia, and Japan.

PNG is vulnerable to the impacts of globalization and trade liberalization, such as the loss of trade concessions and preferential access of its commodities to developed country markets, such as the EU, Australia, New Zealand and other markets. Under the new trading environment, PNG is longer afforded such trade benefits but to compete on equal footing with other countries.

Due to lack of capacity and other constraints as well as meeting strict entry market conditions, PNG has great difficulty in exporting its products. This situation severely affects its foreign exchange earnings, which impacts on the country's ability to respond to sustainable development and other national development challenges. In this regard, the developed countries must be flexible in allowing for its export commodities to access their markets.

Further, since PNG can not compete effectively with products of other countries due factors, such as high cost of production and lack of efficiency, PNG requires the support of developed countries and other development partners to enhance the country's capacity to leverage its national efforts to survive in the tough global trading environment.

The above situations presents huge export constraints and PNG needs to badly develop and sustain its export capacity to effectively trade under new global conditions.

It is therefore important that capacity building and cooperation targeted towards trade and investment are actually reaching those areas of need. PNG has realized the importance of ensuring that capacity enhancement programs do reach their targeted objectives. It is for this reason that National Working Committees have been established in the Department of Trade and industry to oversee the effective management of capacity building programs offered through the WTO and the APEC as well as through the new Economic Partnership Agreement (EPA) under the Cotonou Agreement that will be negotiated shortly.

Through the above systems, the country must ensure that capacity enhancement programmes are actually demand-driven, in that PNG can tell international organizations where its export constraints are and invite them to address such constraints through cooperation arrangements offering capacity enhancement programmes.

As indicated above, PNG is a party to a number of regional trade agreements such as APEC (a grouping of economies in the Pacific rim), PICTA (Pacific Island Countries Trade Agreement excluding Australia and New Zealand) and PACER (a Pacific Agreement on Closer Economic Relations with Australia and New Zealand). Under these agreements, there is strong emphasis on regional cooperation in particularly to deal with enhancement of capacity to trade effectively and realize and enjoy gains in trade.

Some of the cooperation initiatives pursued under the framework of the agreements include: -

ASYCUDA (Automated System of Customs Data) – APEC Cooperation initiative to harmonize customs data among the 21 member economies to effectively and efficiently facilitate trade.

Standards and Conformance Accreditation Institution – APEC Cooperation initiative to authorize competent National Institutions to ensure standards of goods are conformed to internationally accepted standards and certified before they are actually traded. In PNG, the National Institute of Standards and Industrial Technology (NISIT) is accredited to conduct tests through Mutual Recognition Arrangements (MRAs) to ensure exports meet international standards.

Intellectual Property Rights (IPR) – Under APEC and WIPO an IPR Office has been established and appropriate legislation put in place to regulate IPR issues. The staff are also given training to enhance their knowledge on technical aspects of IPR. The General Public, are also informed through Seminars and workshops.

Trade Facilitation – under the APEC, PICTA and PACER, trade facilitation issues such as standards and conformance, quarantine, customs valuation and pre-shipment inspection to name a few are being addressed with the hope of cutting transaction costs to trade by 5%.

There are countless number of training programmes offered for PNGeans under the framework of the agreements to develop and enhance knowledge and skills to effectively facilitate trade in PNG. It should also be pointed out that through such regional cooperation provided for under the various agreements, PNG's export constraints are being addressed with a view to enhancing export capacity for PNG products to competitively access markets provided for under those agreements.

### **Measures and actions to overcome constraints**

In order to promote trade and investment, which are so critical towards the attainment of sustainable development goals and other national development objectives , PNG must, inter alia:

- (i) put in place good policies with attractive incentives to encourage foreign investment in the country.
- (ii) put in place mechanisms whereby the Government as well as the international community can assist farmers during low commodity prices.
- (iii) solicit the support and assistance of developed countries as well as regional and international organizations to encourage foreign investment in the country.
- (iv) encourage more downstream processing of its natural resources, which will create employment, generate foreign exchange, and improve the living standards of the people.
- (v) ensure that the transportation and communications systems are maintain and or function effectively for foreign investment to take place in PNG.
- (vi) initiate training programmes that are designed to meet the manpower needs for investments in the country.
- (vii) initiate a mechanism for the international community to sustain sustainable development projects when export commodities and other foreign exchange earning are affected by natural disasters.
- (ix) ensure that the country's monetary policies are conducive to promote trade and investment in the country.
- (x) conform to the new competitive international trade environments, through adjustment programmes that build and enhance their export capacities, including trade facilitation and regional integration incentives, such as the Pacific Agreement on Closer Economic Relations.

## **9. Global partnership for development**

PNG is faced with lack of manpower, finance and other resource constraints to achieve its sustainable development objectives. In the face of these difficult situations, PNG must take advantage of the global partnership initiatives to achieve sustainable development, including the implementation of the BPoA.

PNG has existing relations with many developed and developing countries as well as multilateral organizations and institutions to address its sustainable development and other national development challenges. The NGOs, churches, and the private sector also play a critical role in servicing the needs of the people at the community level.

Most of these entities seem to have specific programmes and activities that they are tasked to perform. Some of them are involved in the social fields whilst others deal with economic or environmental issues. However, given interlinkages and cross-cutting nature of the sustainable development issues, this approach does not seem to address the other related aspects of sustainable development.

In this context, the partnership concept launched at the WSSD Summit is a commendable initiative that allows for all stakeholders to work in close cooperation to address the sustainable development in a holistic manner. It forges partnership between Government and international development partners, private sector, civil society, NGOs and other stakeholders to mobilize resources and efforts to achieve sustainable development and other development objectives.

PNG should take advantage of the partnership initiatives, such as Pacific Type II Initiatives to address its many sustainable development issues. In order to do this, there is a need to establish a Coordinating Committee that should be involved in identifying projects that can be implemented under the partnership initiatives. The Committee should coordinate the preparation of project proposals that can be submitted to the Commission on Sustainable Development to look for possible partners for implementation.

These in-house matters must be sorted out quickly so that PNG can take advantage of the Global Partnership Initiatives and establish sustainable development projects in the country.

### **Measures and actions to overcome constraints**

In order for PNG to take full advantage of the Global Partnership Initiatives to address its sustainable development concerns, PNG must, inter alia:

- (i) encourage the bilateral, multilateral, NGO, churches, and the private sector to work in partnership to address sustainable development issues in a holistic manner.
- (ii) establish a National Partnership Coordinating Committee, comprising representatives of relevant Departments and Agencies that will be involved in the preparation and coordination of project proposals that can be implemented under the Pacific Type II Partnership Initiatives.
- (iii) engage into dialogue with existing and other new development partners to establish partnership sustainable development projects in the country.

## **10. MDGs and sustainable development in PNG**

### **(i). Poverty eradication**

Eradicating poverty is the greatest global challenge facing the world today and as such, it has been identified as one of the Millennium Development Goals (MDGs). In pursuit of this Goal, PNG must take appropriate actions to achieve the targets of halving by the year 2015, the proportion of the world's people whose income is less than 1 dollar a day, and the proportion of people who suffer from hunger; and by the same date, to halve the proportion of people without access to safe drinking water.

As a Party to the Millennium Declaration and the MDG, the PNG is committed towards achieving this internationally agreed goal. It is also a national development priority and is addressed under the National Poverty Reduction Strategy (NPRS).

The successful implementation of the Strategy depends very much on the cooperation and adoption of the same at the provincial level. In this regard, the Provincial Governments must adopt poverty reduction as the overarching policy objectives in the provinces and implement the programmes and activities to achieve its objectives, goals and targets.

The NPRS is structured around five pillars, which are critical towards achieving poverty reduction in the country. These are good governance, increase development of land and natural resource, improve and maintain physical infrastructure, improve and expand economic growth opportunities, and strengthen and expand social services.

#### *Strengthen governance*

The current social, economic, environmental and other development challenges facing PNG is attributable to the lack of good governance. In order to address this issue, the current Government had identified good governance as a priority issue that needs to be addressed to meaningfully pursue the its Agenda for Recovery and Development.

This policy objective is pursued through the Government's efforts of strengthening and maintaining political stability in the country. The constitutional amendment and review of the 2001 Organic Law on the Integrity of Political Parties are designed towards achieving this objective.

The Government had re-established the Parliamentary Public Accounts Committee, which is responsible for overseeing the financial operations and performance of government bodies. The strengthening of key 'watchdog' and legal oversight agencies, such as the Ombudsmen Commission, Auditor General, Public Prosecutor, and the Department of Attorney-General demonstrates the Government commitment to the issue.

Corruption will be further targeted through the establishment of the long delayed Independent Anti-Corruption Commission.

*Increase development of land and natural resource*

This policy objective of the Government is aimed at utilizing the country's rich natural resources for the betterment of the country. PNG's rich and fertile land must be utilized for economic activities, such as growing rice, wheat, vanilla, coffee, cocoa, and copra. The Kandep Wheat Project and the recent introduction vanilla in the East Sepik Province are examples of the realization of the Government policy drive to work on and develop our land to sustain economic development both in rural and urban areas.

Such projects would be consistent with the Government's development strategy of "Export-Driven Growth, Rural Development and Poverty Reduction, which is aimed at promoting agriculture, forestry, and fisheries on an ecologically sustainable basis.

PNG is endowed with rich resources both terrestrial and marine resources. The sustainable use of these resources is important to yield maximum benefits for rural communities and the country as a whole. The Government's effort to achieve this objective is manifested through the various policies, programmes, and projects concerning the different rich resources of the country.

For instance, with regards to the sustainable use of land-based resources, forestry, and minerals, the Government introduced the Code of Conduct for Logging, the Mine Closure and other policies. Such policies are aimed at sustainable management of the resources and also to maximize the benefits for the landowners and the country as a whole.

Development of agro-business activities is important towards achieving the Government's strategy of Export-Driven Growth, Rural Development and Poverty Reduction. In order to make meaningful progress in pursuit of this strategy, the Government must put in place policies, and programmes to, inter alia, increase commercial lending to the agriculture sector; and review the policies of the Rural Development Bank to facilitate credit supply to rural areas.

*Improve and maintain physical infrastructure*

The infrastructure networks for the road system, airports, wharves and harbors for the sea transportation system are lifelines of the country. The current Government has identified it as one of the most important sectors and prioritized it for funding under the 2003 National Budget.

The Government's foresight in prioritizing this sector is driven by the vision that a well-maintained transport infrastructure is essential for the smooth flow of consumer goods and services to village communities. Improving the transport system would enable rural communities to transport their products to the markets and receive income to improve their socio-economic well-being.

Further, an improved transport system would also improve the provision and delivery of key services in health, education, and law and justice.

#### *Improve and expand economic growth opportunities*

Economic growth is very important towards poverty eradication in PNG. The importance of this sector is reflected by the Government's export-driven economic growth policy. This is being pursued under certain programmes and activities aimed at expanding and promoting household income earning and subsistence opportunities; reduce government debt, expand and promote informal sector economic activities; promote sustainable economic growth in commercial agriculture through increased production, distribution and marketing of goods and services; and encourage the development of downstream processing activities.

In an effort to realize these policy goals, the Government had committed budgetary funding to initiate and/or reactivate existing facilities, which includes, the National Spice Crop Development, National Food Security Programme, Rural Agro-enterprise Project, Fisheries Development Project, Rehabilitation of copra facilities, Cocoa downstream processing, and other Priority Agriculture Development Programmes.

#### *Strengthen and expand social services*

PNG's policies and priorities in the social sector is an accurate reflection of the development challenges the country is facing. The priority concerns in this sector includes the provision of health, education, food and nutrition services to all section of the community; combating and prevention of HIV/AIDS epidemic in the country; and improve access, quality and delivery of basic reproductive health services, information and education.

These issues will be addressed through certain policies and programmes, which are aimed at the provision of relevant education and training; improve and maintain preventative and curative health services nationwide; prioritize and address vulnerable/disadvantage groups, based on the findings of the Participatory Poverty Assessment; integrate HIV/AIDS issues into development planning; integrate culture into development planning; and integrate women's socio-economic rights into development planning.

The rural people are engaged in agriculture, fisheries and other forms subsistence activities to sustain their livelihood, however, economic activities through the utilization of such resources generate some employment for rural areas. For the urban population, creating employment opportunities are very important as they solely depend on incomes to sustain their lives in towns and cities.

Since the Government is down sizing the Public Service, the Government is committed towards creation of employment opportunities through the development of the private sector, both formal and informal sectors.

### **Measures and actions to overcome constraints**

Poverty eradication is the greatest challenge facing PNG. In order to address this critical issue, PNG must, inter alia:

- (i) provide manpower finance and other necessary resources to implement the NPRS in the country.
- (ii) ensure that the Provincial Governments adopt poverty reduction as the overarching policy objective and implement the NPRS at the provincial and local levels.
- (iii) provide adequate funding and other resources to Government Departments and Agencies that are responsible for law enforcement, and upholding good governance in the country. The international community must assist PNG to strengthen its good governance efforts in the country.
- (iv) establish the Independent Anti-Corruption Commission as a matter of urgency so that concrete actions are taken to fight corruption in the country.
- (v) urgently sign and ratify the recently adopted United Nations Convention to Combat Corruption.
- (vi) encourage the establishment of economic projects at the community level to increase income generation and employment for local communities.
- (vii) implement policies, such as the Code of Conduct for Logging, Mine Closure and other policies aimed at enhancing sustainable development and maximizing benefits to the local communities and the country as a whole.
- (viii) promote and establish agro-businesses to achieve the Government's strategy of 'export driven growth, rural development and poverty reduction' through the

provision of financial and other resources to the Agriculture Bank and other Government entities that are involved in supporting rural agricultural projects.

- (ix) strengthen and expand the provision of social services, such as education and health to improve the socio-economic wellbeing of the people.

## (ii) Education

PNG is committed towards implementing the MDG on achieving universal primary education, which is aimed at ensuring that all boys and girls complete a full course of primary schooling.

It is pursued under the Government's Universal Primary Education Policy, which aims to provide the opportunity for all children to complete nine years of basic education. First priority is accorded to programs supporting basic education (elementary to primary school). Current evidence suggests that 60% of children starting Grade 1 drop out by Grade 6. Elementary education prepares children for entry into primary education, commencing at Grade 3 and finishing at Grade 8.

Enrolments in elementary schools have risen to more than 200,000 and in excess of 8000 teachers have either been trained or are in the process of being trained. As numbers in the elementary schools has risen, enrolments in primary schools have dropped accordingly. These are remarkable achievements and have meant that access into first year of school is now almost 100%. Table 12 shows the number of children in Grade 1, in both the elementary and primary schools, and the number of 7 year olds in the country as per the latest census data.

**Table 12 : Enrolment rates by gender for the years 1983 to 1990**

Years	Male (%)	Female (%)	Total (%)
1983	68.4	56.2	62.6
1984	72.1	59.8	66.2
1985	72.1	61.1	66.8
1986	75.0	63.5	69.5
1987	75.1	64.3	69.9
1988	77.0	65.7	71.5
1989	80.0	67.6	74.0
1990	68.1	64.2	66.3

Source: National Department of Education, Papua New Guinea, Paper 1, A Report on Universal Primary Education in Papua New Guinea.

In the absence of an adequate retention rate, the overall policy of Universal Primary Education is ineffective. In this regard, an integral component of the program of basic education is aimed at improving the retention and thus the efficiency of the primary education system.

In an effort to realize the objective of this policy, the Government had committed budgetary resources towards basic education, including implementing curriculum reforms, teacher training, improving infrastructure and rural education facilities, while also ensuring adequate funds are available to pay for teacher salaries. In addition, resources are also provided to support secondary education, technical and vocational training and literacy teaching.

The AusAid Elementary Teacher Education Support Project has helped finance the training of elementary teachers, teacher trainers and training coordinators.

Under the National Education Plan 1994-2004, maintenance of elementary, primary and secondary school infrastructure remains the responsibility of communities. However, the local and provincial governments and other agencies' financial support have been necessary to maintain existing infrastructure. Provincial Government's will need to spend a higher percent of their budgets on the maintenance of education facilities to support the reforms being implemented.

The Government's target date for achieving Universal Primary Education was set for 2004. This is increasingly seen as being too ambitious and will, in all likelihood, be adapted in preparation for the next education plan.

An important aspect of the National Education Plan 1994-2004 is the promotion of gender equality. The focus of the Education Department on gender issues is balanced participation between males and females, but with more emphasis on female participation. This is in line with the education reform, which calls for more participation of females at all levels of education and emphasizes on the issue of access and equity.

In 1999, the Gender desk was established within the Teacher Education and Staff Development Division of the Department of Education to coordinate and facilitate all gender programs. Since its establishment, assistance has been provided to implement gender programs particularly at the elementary and primary levels.

A policy was required to address the Department's view on the issue of gender, so that educators and teachers at all levels address the issue as part of their professional responsibility. In 2000, a committee was set up to offer guidance and assistance in the development of the Gender Equity in Education Policy. This was completed in 2001 and was launched on 7 May 2003.

Following the launching of the Gender Equity in Education Policy, the Department of Education, in conjunction with AusAid, sponsored the Primary and Secondary Teacher Education Project. Under this Project, regional workshops were convened for curriculum developers, which were aimed at providing awareness of this Policy at the provincial level; develop a plan of action to implement and disseminate the information through the provincial education system and institutions; and develop and compile an in-service package for gender programs.

Gender programs are being implemented at the elementary and primary levels through gender inclusive curriculum materials, institutionalizing gender programs at the teachers colleges, increased enrolments of female students in schools and the positive gender practices in schools ...etc. However, there is a need to extend this program into the secondary, vocational and technical levels including in-service training of education officers and teachers and the community at large.

### **Measures and actions to overcome constraints**

Education is a priority development issue for PNG, given the high illiteracy rate and its critical importance in the long term sustainable development of the country. In pursuit of this Government priority, PNG must, inter alia:

- (i) develop strategies and programmes aimed at improving the retention rate to make the Universal Primary Education Policy effective.
- (ii) ensure that the Provincial Governments provide adequate funding and other resources to maintain educational facilities and support the implementation of the policy at the provincial level.
- (iii) ensure the effective implementation of policies and programmes that are aimed at encouraging girls to pursue their education and to participate as equal partners with their male counterparts in the development process of the country.
- (iv) extend similar gender equity programmes into the secondary, vocational and technical levels including in-service training of education officers and teachers and the community at large.
- (v) improve the funding situation and also provide other necessary to educational institutions that lack facilities, such as classrooms, teachers' houses, as well as text books and other learning materials.

### (iii) Reduction of child mortality

Reduction of child mortality is the fourth goal of the MDG, which is aimed at reducing by two thirds the mortality rate among children under five years by the year 2015.

Children have the right to basic health care and PNG is committed to ensuring the provision of necessary health to all children. Child health services are made up of both preventive and curative components including immunization, growth monitoring, school health, integrated management of childhood illnesses and management of other childhood diseases.

Infant and child mortality in PNG remain unacceptably high and are among the worst in the Western Pacific Region. Close birth spacing, high infection rates, unsupervised deliveries, maternal malnutrition, mother-to-child transfusion of HIV/AIDS and mothers' low nutrition-related problems and child abuse are widespread and increasing in many communities.

Programme delivery and coverage are greatly affected by lack of resources, poor management and other factors such as law and order. Under-utilization of services and lack of awareness of the availability and the benefits of services contribute further to the poor health status of children.

In light of this situation, an integrated approach to child health and the reduction of child mortality had been taken, which aims to improve and strengthen routine immunization; strengthen children's health program with relevant components of integrated management of childhood illnesses; ensure access to primary health services for all children; improve community awareness and education; expand and maintain the Health Promoting Schools Program, improve supervision and training of clinical staff; and advocate and collaborate on the protection and promotion of children's rights.

The Government had also determined its own objectives and targets on the reduction of child mortality, as indicated in the Table 13.

**Table 13 : Objectives and indicators on child mortality**

<b>Objectives</b>	<b>Indicators</b>
To reduce the infant mortality rate from 77 to 53 per 1000 live births by 2010	Infant mortality rate
To reduce the child mortality rate from 23 to 18 per 1000 live births by 2010	Child mortality rate
To increase immunization coverage of children under one year to no less than 90% by 2010	Proportion of fully immunized children under one year

To increase immunization coverage for school children to 100% by 2010	Proportion of targeted school children fully immunized
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Source: National Health Plan 2001-10, Health Vision, Program Policies and Strategies, Volume II

This should assist the Government to undertake necessary measures and actions not only to achieve the national objectives and indicators, but also the MDG goals and targets. However, achieving these targets is difficult due to certain challenges, such as the worsening child morbidity and mortality in the country, children are not receiving proper nutrition to the detriment of their mental and physical development, declining and unacceptably low immunization coverage, lack of consistent support for child health services at the provincial and local level, and lack of awareness for parents and communities of the availability and benefits of services and make insufficient use of them.

### **Measures and actions to overcome constraints**

PNG must take concrete measures and actions to improve the child mortality rate in the country, which includes, inter alia, the following:

- (i) ensure the effective implementation of policies and programmes aimed at reducing child mortality in the country.
- (ii) ensure the provision of adequate financial, manpower and other resources to improve child health services in the country. International support and assistance from bilateral and multilateral sources as well as NGOs are badly required to pursue this important issue in the country.
- (iii) institute as ongoing health education and awareness programmes for the people so that they can play their part in reducing child mortality in the country.
- (iv) ensure that the Provincial Governments are supportive of the policies and programmes to reduce child mortality in their provinces.

### **(iv) Gender equality and empowerment of women**

The second goal of the National Constitution says "We declare that our second goal to be for all citizens to have an equal opportunity to participate in, and benefit from, the development of our country." This goal of the National Constitution provides for women to have equal rights and opportunities to participate in the development of the country.

PNG's social, political and economic systems were male oriented. This disparity was further encouraged during the colonial administration when only men were trained and recruited to

take over the public service after independence. This situation has dominated and influenced attitudes and practices within the formal and informal sectors.

PNG must move expeditiously in developing policies and strategies that are aimed at giving more leverage to women in all national activities. For instance, PNG must give preference to women in job recruitment; provide more training opportunities for women; and relax entry levels to schools, colleges and universities.

Further, PNG must embark on gender sensitive economic, social and political development policies to provide a conducive environment for advancement of women in the country.

PNG's commitment and serious recognition of the role of women in the development of the country led to the establishment of Women's Organizations, such as the National Council of Women. PNG had also put in place National Women's Policies; however there were no concrete efforts to implement them due to resource constraints and other related problems.

Women's organizations both within and outside government lack the capacity to initiate major changes especially in project development and management as well as in proposing and bringing about legislative reforms. In this context, PNG must provide opportunities for Women's Organizations to participate in decision making and undertake legislative reforms and other activities to address issues affecting women in the country.

Lack of political will and an ignorance of women's development priorities, aspirations and needs by leaders have kept women in periphery of development. In this regard, the political leaders at all levels of government must make sure that women's development issues and priorities are given urgent attention to empower women in the development of the country.

Poor planning skills and a lack of clear direction by women's groups has meant that women's development have been dissipated and have had little impact on women or girls in urban and rural areas. Hence, the need for leadership and provision of skills training opportunities that are important for Women's Organizations to effectively service the development needs of women in both urban and rural areas of the country.

PNG is committed towards implementing certain international treaties and conventions that safeguard the rights of women. This includes, inter alia, the Political Rights of Women (1952), and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) (1979).

PNG ratified the CEDAW in 1984 without reservation and is also committed towards the implementation of the Beijing Declaration and Global Platform for Action. These culminated in the development of a national platform for action, referred to as the "Papua New Guinea Platform for Action for women Towards National Unity and Stability 1995-2005.

PNG's efforts to implement the above policy resulted in the establishment of certain administrative and institutional mechanisms, such as the Office of the Status of Women, Inter-agency Women's Advisory Committee, and Gender Desks in Key Departments. The policy aims to strengthen partnership relations between government organizations, NGOs, and other stakeholders concerned with gender issues.

Concrete efforts are made in the schools of PNG to promote gender equality and empower girls, as indicated in Section V (i).

Women constitute half of country's population, however their contribution to national development, especially in public service, politics, business, and other activities are very low. This situation also makes it critical for the country to embark on policies and programmes to enhance gender equality and empower women.

### **Measures and actions to overcome constraints**

In order to promote gender equality and empowerment of women in the country, PNG must, inter alia:

- (i) develop policies and strategies that are aimed at giving more leverage to women in all national activities.
- (ii) give preference to women in job recruitment; provide more training opportunities for women; and relax entry levels to schools, colleges and universities.
- (iii) embark on gender sensitive economic, social and political development policies to provide a conducive environment for advancement of women in the country.
- (iv) enhance the capacity to initiate major changes especially in project development and management as well as in proposing and bringing about legislative reforms.
- (v) ensure that women's development issues and priorities are given urgent attention to empower women in the development of the country.
- (vi) provide training opportunities to Women's Organizations to function effectively to service the development needs of women in both urban and rural areas of the country.

## **(v) Health Issues**

### **Malaria and other diseases**

PNG's is faced with six diseases namely; malaria, pneumonia, diarrhea, tuberculosis, measles and anemia. They account for 40% or more deaths for people below 45 years of age. Also, meningitis and typhoid are leading causes of mortality and account for another 10% of deaths.

These diseases can be managed and treated inexpensively at rural aid posts and outpatient clinics by trained health extension officers or nurses.

In this vein, the focus of PNG's budgetary expenditure remains primary and preventive health care, with priority being given to the expansion of services to the rural areas. Aid posts and health centers, with appropriately trained staff, effective supervision, regular community outreach and mobile clinics and patrols, and supplies of drugs and materials, are the priority activities to deliver health interventions in the country.

In 2003, the Department of health published the National Policy on Partnerships in the Health Sector for PNG, reflecting the sector-wide approach being undertaken. The specific objectives of the partnership strategy are to ensure that there is:

- recognition of the role partners play in supporting the National Department in delivering priority health programmes;
- optimal use of Health Services Improvement Programme, the Department's sector wide approach to service delivery;
- central coordination and collaboration between all the relevant partners in service planning, implementation, monitoring and evaluation;
- formal partnership agreements documented between the National Department of Health and partners;
- an equitable distribution of Government resources among all the funded partners;
- minimum standards of health service delivery are applied by all service providers in PNG;
- extended service to basic health service delivery, education and promotion through collaborative efforts;

- development of innovative approaches to address public health issues; and
- improved technical and management capacity of the public health sector to enable partnership.

PNG is determined to pursue these objectives and address other health issues affecting the people. This is reflected through the adoption of good policies, and strategies to address these issues. The allocation of a significant portion of budgetary resources attests PNG's commitment to combat these health issues.

Despite such efforts, the challenges are beyond the Government's capacity to handle. PNG does not have enough health workers, such as doctors and nurses to deliver health services to the people. Further, PNG does not have adequate health facilities, such as hospitals, health centres, and aid-posts to respond effectively to the health needs of the people.

Building new health facilities is a mere dream as existing hospitals, health centres, and aid-posts do not have enough health workers to discharge required services. They are not equipped with medical instruments and the necessary drugs to serve the people. Under these circumstances, it is difficult to provide quality health services to the people to deal with the diseases.

PNG's effort towards addressing these health issues are supported by international organizations, such as WHO, UNICEF and also other bilateral partners. NGOs and churches also do a remarkable job in providing much needed service to the people.

Given the magnitude of the health challenges facing the country, due to malaria and other disease, PNG requires the continuous support of international community to complement the Government's efforts to address these challenges.

### **Measures and actions to overcome constraints**

In an effort to address these health issues that are affecting the people, PNG must, inter alia:

- (i) ensure that the hospitals, health centres, and aid posts are adequately staffed with well trained doctors, nurses, and health extension officers.
- (ii) ensure that the health facilities have the necessary equipment, instruments and drugs to meet the health needs of the people.

- (iii) implement the National Policy on Partnership in the Health Sector for PNG, which embarks on an effective partnership among all partners in addressing the health issues.
- (iv) allocate more financial, technical and other resources to the health sector to address these issues. PNG's efforts to provide the basic health services for its people requires the support of the private sector, NGOs, other bilateral and multilateral partners.
- (v) strengthen the health system of the country to deliver basic health services in an efficient, accessible and affordable manner aimed at preventing, controlling and preventing diseases.
- (vi) improve the coordination and collaboration among relevant partners in planning, implementation, monitoring and evaluation of health services.

## **HIV/AIDS**

HIV/AIDS was first detected in PNG in 1987. In the last sixteen years, the number of reported HIV/AIDS cases has grown exponentially. Currently, the reported cases stand at well over 7, 000 people infected by the HIV/AIDS virus, the highest among the Pacific Island countries. It has been estimated, however, that for every known case for HIV there would be up to 100 unreported cases.

The majority of cases for which information is available are found in persons aged 20 to 29 years. The number of persons aged 13-19 years who are infected with HIV is increasing significantly. Available data indicates that heterosexual intercourse is the main mode of HIV transmission in PNG. The second most common form of known transmission is vertical, or mother to infant during pregnancy or childbirth. Given PNG's highly mobile population with strong urban-rural links, HIV has undoubtedly spread to even the most remotest part of the country.

The rapid increase in the number of known HIV/AIDS cases over the last several years makes it apparent that Papua New Guinea is already experiencing a potentially devastating epidemic with serious social, economic, and demographic implications. It has been estimated that without aggressive and effective preventive interventions, by the end of the year 2006 there would be a cumulative total of 62, 000 people infected with HIV, a cumulative total of over 13, 500 AIDS cases and a cumulative total of over 12, 000 deaths.

Youths are the most vulnerable group of HIV infection. Most young people do not have basic sexual and reproductive knowledge and are not aware of the negative consequences of unprotected sex and the means to prevent pregnancy. Parents and teachers do not have the skills to openly communicate with children and adolescents about issues of sex and

sexuality, and most young people rely on their peers for what little information they receive. The majority of youths are outside the formal education system and do not have access to reliable and accurate information. Further, most young people do not have easy access to health services and the resources that enable behavior change.

Because HIV/AIDS primarily affects men and women in their most economically productive years, a major indirect cost of the HIV/AIDS epidemic is the loss of skilled labor and productivity. The effects of the HIV/AIDS epidemic would have devastating impact on the rural agriculture sector. Using models of economic growth, it has been estimated that the epidemic threatens to decrease annual economic growth by 0.5-1 percent and per capita income by .03 percent. A preliminary estimate for PNG suggests that without an immediate and aggressive national awareness and prevention programme, the cumulative indirect cost of AIDS epidemic in purchasing power parity terms would be US\$311 million by the year 2006.

#### *Responses and achievements to date*

There have been a number of significant achievements to date in responding to the challenges of HIV/AIDS in the areas of education and prevention, treatment and care, laboratory services, surveillance and research, and legal and ethical issues. During the 1980s, the Government responded early to the impending HIV/AIDS epidemic, working closely with the World Health Organization (WHO) Global Programme on AIDS to develop programmes and strategies to prevent and control the spread of HIV. Ensuring a safe blood supply and training laboratory technicians in anti-HIV testing were among the immediate controls that were in place. In 1996, the National Department of Health (NDOH) established the National AIDS Surveillance Committee (NASC), which developed the National Medium Term Programme for the Prevention and Control of AIDS in PNG for 1989-95.

The National Health Plan 1996-2000 provides a policy framework for STD controls and HIV/AIDS prevention programmes within the health sector. The Sexual Health and HIV/AIDS Prevention and Care Project in the NDOH represents the most significant and comprehensive approach to date for responding to the HIV/AIDS epidemic in PNG. Commenced in 1995, the goal of the project is to improve the sexual health status of the people of the country, and in particular to prevent the transmission of HIV and promote quality care for people living with HIV/AIDS.

The contribution of Churches and NGOs in the delivery of HIV related services has been fundamental to the national response, complement government activities in their areas comparative advantage. From the early stages of the epidemic, the donor community in PNG had played key role in providing financial and technical support. For instance, with AusAid assistance, the PNG established the multi-sectoral response and the comprehensive implementation of the Medium Term Plan; European Community and other

agencies, such as UNAIDS, UNDP, WHO, and UNFPA continue to support the efforts of the Government address the HIV/AIDS epidemic and other related issues.

#### *National AIDS Council and Provincial AIDS Committee*

The most significant milestone to date in the national response has been the passing of the National AIDS Council (NAC) Act by the National Parliament in December 1997. The legislation paves the way for establishing a multi-sectoral advisory body responsible for policy formulation on all issues related to HIV/AIDS and for instituting an organizational structure to foster, coordinate and monitor the Medium Term Plan and program activities.

The NAC's objectives are to take multi-sectoral approaches with a view to prevent, control and to eliminate transfusion of HIV/AIDS in PNG; organize measures to minimize the personal, social and economic impact of HIV infection and the disease of AIDS; and ensure, as far as possible, that personal privacy, dignity and integrity are maintained in the face of HIV/AIDS epidemic in PNG, in accordance with the Constitution and Global Strategy on AIDS.

A number of provinces have established Provincial AIDS Committee (PAC) with multi-sectoral representation. Technical support had been provided under the second phase of the Sexual Health Project to help establish PAC in every province. The PACs are functioning as sub-committees of the NAC and provide the key mechanism for implementing HIV/AIDS programs at the provincial and district levels.

The Medium Term Plan builds on the achievements and strengths of established policy and program activities and draws on the knowledge and experience of the many individuals and organizations involved in the HIV/AIDS work. It is important that the national response to HIV/AIDS is integrated in PNG's all overall development strategy and the major sectoral and provincial government reforms being undertaken to improve and expand services to the rural majority. In addition, the expanded response depends heavily on community participation and leadership. PNG has significant social and cultural resources that can be tapped and mobilized in support of multi-sectoral strategies.

Putting the MTP into action depends on increased commitment from people in many agencies and sectors in all provinces throughout the country. Effective implementation requires a strong institutional and organizational framework in order to translate the objectives and strategies into operational plans and coordinate and strengthen the linkages between sectors. The primary responsibility of the Government, churches and NGOs, the donor community and the private sector is to provide the necessary structures, services, technical input and resources that support the strategies for the MTP. It is anticipated that partner organizations will identify objectives and strategies for implementation based on relevance to their areas of experience, expertise and comparative advantage.

The major components of the MTP are as follows:

- Education and information are cornerstones of an effective national response to HIV/AIDS. The objectives in this area are to raise the level of awareness and understanding of HIV and STD transmission and prevention among the general population, with particular focus on youth, and to promote behavioral change; and to support mechanisms for the coordination of HIV/AIDS awareness activities, including the production of information materials, and to provide for training needs as an essential component of an effective HIV/AIDS education program.
- The law has a major role in contributing to the nation's ability to respond effectively to the HIV/AIDS epidemic. Its objectives are, inter alia; to ensure that awareness and prevention programs are linked to the provision of counseling support services; and assist families and communities to care for people with HIV/AIDS in their home environment with back-up support from counsellors, health workers and existing health facilities in order to reduce the number of hospital inpatients and to provide quality care.
- The law has a major role in contributing to the nation's ability to respond effectively to the HIV/AIDS epidemic. In this regard, the MTP aims, inter alia, to advocate for and support legislation and policies regarding HIV/AIDS based on the ethics of compassion and non-discrimination; foster a climate of tolerance and respect for human rights to enable effective implementation of HIV/AIDS prevention and care programs; and support institutional mechanisms for the development of the legal and ethical framework for HIV/AIDS prevention, treatment and care programs.
- An effective national response to HIV/AIDS must look beyond the health sector to the associated social and economic causes and consequences of the epidemic. The objectives in this area are to support ongoing research and analysis of the social and economic impacts of HIV/AIDS in order to provide quantitative and qualitative information for multi-sectoral planning at the local, provincial and national levels; and provide sustainable development initiatives as a means to alleviate the socio-economic disparities that contribute to the spread of HIV/AIDS.
- The NDOH has long recognized the importance of maintaining and strengthening the ability of the public health sector to provide national surveillance of the status and trends of the HIV/AIDS epidemic. The objectives in this area includes, inter alia: to enhance research into STD and HIV/AIDS in PNG in order to identify behavioral factors and practices that impact on the transmission of STD and HIV; establish a central coordinating body for research and surveillance; and strengthen data collection for HIV/AIDS.

- The health sector has led the national response to HIV/AIDS since the virus was first detected in PNG in mid-1980s. The objectives in this important areas are, inter alia, to achieve the on-going 100% HIV antibody screening of blood/tissue/organ donors by the end of 1998; ensure adherence to Infection Control guidelines; develop the capacity of all levels of health services to provide HIV/AIDS clinical care; and improve and strengthen the capacity of specialized training in STDs and HIV/AIDS.

### **Measures and actions to overcome constraints**

Certain concrete actions and measures that PNG must take to address the HIV/AIDS epidemic in the country include, inter alia, the following:

- (i) undertake massive educational programmes to raise the level of awareness and understanding of HIV/AIDS, with particular focus on youth, to promote behavioral change as an essential component of combating this epidemic.
- (ii) ensure that parents and teachers at schools play an important role in openly communicating to children about the dangers of contracting the AIDS virus. This should enable behavioral change and prevent the spreading of HIV/AIDS in the country.
- (iii) appeal to sexually active people to undergo regular blood test for AIDS virus, as thousands of people are not aware that they are carriers of this deadly virus and are unknowing passing the virus to other sex partners.
- (iv) ensure that HIV/AIDS testing laboratories are located in the major hospitals and health centers of the country to carry out tests, which is critical in the fight against the spread of the virus.
- (v) effectively implement policies, strategies, programmes and activities designed to combat the spread of the HIV/AIDS and other related issues in the country. The international community must continue to assist the country in its effort to address all HIV/AIDS related issues facing the country.
- (vi) ensure that the Government and international community support the work of NGOs and churches in the fight against HIV/AIDS.
- (vii) implement programmes and activities to minimize personal, social, and economic impacts of HIV/AIDS infected people.

- (viii) ensure that awareness and prevention programs are linked to the provision of counseling support services; and assist families and communities to care for people with HIV/AIDS in their home environment with the help of counsellors, health workers and existing health facilities.

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