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ACRONYMNS

ADB	Asian Development Bank
DOE	Department of Environment
GOT	Government of Tonga
MOE	Ministry of Education
MOF	Ministry of Fisheries
MOFA	Ministry of Foreign Affairs
MAF	Ministry of Agriculture and Forestry
MOFin	Ministry of Finance
MOH	Ministry of Health
MLSNR	Ministry of Lands Survey and Natural Resources
MOW	Ministry of Works
TVB	Tonga Visitor's Bureau

1. SOCIO ECONOMIC CONTEXT

1.1 Key Characteristics

The Kingdom of Tonga's geography is a major determinant of its development opportunities and constraints. Its land area is about 688 square kilometers (688 sq km) consisting 170 islands and spreading across 360,000 sq km of Pacific Ocean. The four main island groups are Tongatapu and 'Eua, Vava'u, Ha'apai and the Niua. The capital, Nuku'alofa, is in Tongatapu. Tonga is well endowed with agricultural and marine resources. The exclusive economic zone (EEZ) is approximately 700,000 sq km.

Like most Pacific Island countries, Tonga is vulnerable to external economic shocks and natural disasters, particularly droughts and cyclones. Tonga ranks third on a global ranking of 111 development countries by the Composite Vulnerability Index. Tonga's resident population is approximately 100,000 and is almost entirely Polynesian. The same number of Tongans is believed to reside in overseas countries, mainly in New Zealand, Australia and the United States of America.

Tonga has a high standard of human development compared with other Pacific Island countries and with developing countries in general. Tonga's GDP per capita was around US\$1,868 in 1999-2000, life expectancy was 70 years, the literacy rate was 99 percent, and the gross enrollment ratio was 83%. Tonga's Human Development score of 0.647 places her fourth out of the 12 Pacific Islands countries (PIC).

1.1.1 Recent Economic Activities

Recently, the Tongan economy grew at the annual average rate of 1.8 percent during the period 1973-1995, with per capita growth at 1.2 percent. Remittances and government spending were the engines of growth. While real GDP grew at the average annual rate of 2.2 percent in the 7 year period from 30th June 1994 to 30th June 2001, growth rates varied from minus 0.1 percent to 6.2 percent showing the variability within the economy which is heavily dependent on agriculture and tourism.

The latest official estimates of GDP for 2000/01 at 1995/96 constant prices stood at T\$242.2 million, posting a real economic growth of 0.8 percent compared with the estimated 0.5 percent (Ministry of Finance (MOFin), 2003). This reflects the weakening

of the Tongan economy. It is estimated (MOFin, 2003) that the GDP's growth rate for 2001/02 is 1.6 percent, 1.9 percent for 2002/03 and a projected rate of 2.6 percent for 2003/04.

The estimate for 2001/02 is based on improvements in the agriculture sector mainly in squash and fish exports. The finance sector continued to record strong growth while the other sectors recorded modest growth. Indicators suggested that the economy continues to expand slightly in 2002/03. The agriculture sector contributed to this growth with increases in both exports and local production. Implementation of the Waka rehabilitation project during 2002/03 contributed to the strong growth in the construction sector. The finance sector continued strongly and is expected to improve further. Other sectors of the economy are anticipated to pick up in the medium term. Despite the effects of the increasing inflation rate, the economic growth for 2002/03 is projected in the order of 1.9 percent.

A boom in the tourism industry and in trade and services sector, associated with the millennium celebrations, underpinned the robust growth of around 6.2 percent in Tonga in 2000. In 2001, however, growth decelerated to 3 percent largely due to the slow growth in agriculture and tourism. There was some activity in the construction sector, which increased by 9 percent as a result of several large aid-funded and private sector projects. The Government administration and community services sub-sector increased by 10 percent due to a 20 percent pay rise for civil servants. The commerce, hotels and restaurant sub-sector contracted by 2 percent during the year. Increased migrant workers' remittances also made an important contribution to the economy, at about four times the value of the exports.

The average annual inflation rate has steadily increased from 6.1 percent in 2000 to 8.4 percent in 2001, 10.3 percent in 2002 and 11.1 percent in August 2003, attributed to the expansionary fiscal and monetary policies of government. The depreciating currency also contributed to the high inflation level. The weighted average deposit rate dropped marginally to 4.7 percent in 2001 whilst the lending rate remained stable at 9 percent.

The deteriorating fiscal situation of government during the year was influenced by factors such as increased spending on public enterprises and shortfall in non-tax revenues. The overall budget deficit was 2.6 percent of GDP. The deficit was financed by advances from banks and bond issues in the capital market. Public domestic debt stood at 32.5

million in 2001. Additionally, The Tonga Trust Fund, which is held offshore, has fallen dramatically over the years due to weak management.

The trade deficit shrank in 2001 to one third of GDP as merchandise exports, primarily squash and fish, increased by 3.7 percent, while imports declined by 4.3 percent due to weak domestic demand. The current account recorded a deficit equivalent to 8.2 percent of GDP. The capital account surplus fell further from its historically low level in 2000 due to a rise in Tonga's overseas investments. Foreign external reserves dropped to US\$12million, equivalent to 2 months of imports of goods and services. The external was 44.6 percent of GDP, and the debt service ratio was 19.5 percent of exports and services. The pa'anga depreciated by 11 percent in nominal effective terms and by 6.8 percent in real effective terms.

For the year 2001/02 the overall balance of payments (OET basis) recorded a surplus of \$13.8 million, compared with a deficit of \$0.4 million in 2000/2001. The balance of trade recorded a deficit of \$94.9 million, compared with \$96.7 million in the preceding year. The increase in export receipts more than offset the increase in imports payments during the financial year 2001/2002, resulting in a slightly lower deficit compared with 2000/01. The services balance improved from a deficit of \$17.2 million to a deficit of \$4.1 million largely due to higher transportation and other services inflows combined with lower transportation and travel payments. The higher net transfer inflows of \$116 million were more than enough to offset the deficits in the trade, services and investment income accounts. Therefore the current account recorded a surplus of \$15.8 million, a significant change from the \$26.2 million deficit of the previous year.

The capital account recorded a surplus of \$15.8 million, a significant improvement from the \$6.2 million surplus recorded in 2000/01. This was attributed to the release of the first tranche (\$10.7 million, equivalent to US\$5.0 million) of the loan from the Asian Development Bank (ADB), in support of the Economic and Public Sector Reform Program, plus receipts of foreign aid assistance and private capital inflows.

Table 1.1 Balance of Payments for 1999/00 to 2002/03 (OET Basis)

	1999/2000	2000/01	2001/02	2002/03 (1 st eight months)
Balance of Trade	-84.7	-96.7	-94.9	-81.5
Services Trade	3.2	-17.2	-4.2	-7.1
Investment Income Balance	-0.8	--2.2	-1.2	-2.6
Transfers Balance	66.3	89.9	116.0	86.1
Current Account Balance	-16.0	-26.2	15.8	-5.0

Capital and Financial Balance	4.2	6.2	15.8	11.3
Other Items Net	3.9	19.5	-17.8	-7.1
Overall Balance	-7.9	-0.4	13.8	-0.9

Source: Ministry of Finance (2003)

1.1.2 Issues

The 2003 Budget Statement (MOFin, 2003) projected that the real GDPT will grow at 2.6 percent reflecting the improvement from 1.9 percent forecasted for 2002/2003. This is due mainly to an increase in the production of fish for exports reflecting the end of El Nino, a modest expansion in agricultural production, and strengthening of most sectors of the economy in particular construction, finance and tourism.

The government's tight fiscal policy proposed for 2003/04 in conjunction with the economic and public sector reform program should relieve some of the pressures on foreign reserves and inflation. This provides the foundation for a more stable macroeconomic environment leading to better economic growth. The current high rate of inflation, however, may more than offset this achievement. Improvement in the exports of squash, fish, vanilla and root crops will strengthen the external position of the country. Disbursement of concessional loan will be a valuable buffer for the external position in the short term.

The fundamental development challenge for Tonga is to continue to improve living standards, and to do so through accelerated and sustained economic growth with equity. There is a need for government policy to focus on promoting private sector-led growth in production and employment. This will require public sector reform aimed at redefining the government's core functions and ensuring that these functions are fulfilled efficiently and effectively. At present, there are over 35 public enterprises, only four of which pay dividends to government. Inefficiencies in the public enterprise sector are likely to exert pressure on fiscal balances of government in the future. As such, it is important that public enterprises become more accountable with the development and implementation of performance guidelines.

Some other immediate challenges for the government include:

- to shift expenditure towards operations and maintenance rather than wages;
- to closely monitor its unbudgeted expenditures which is increasing and has potential risks for a higher inflation and balance of payments pressures;

- to improve governance, transparency and predictability in the regulatory mechanism to facilitate growth of the private sector; and
- to improve the tax system.

Tonga's national *Strategic Plan Seven 2001 – 2003*, sets an ambitious economic target of raising real GDP and real GDP per capita at average annual rates of more than 5 percent during the period 1999 to 2005. The Government acknowledges that, for sustained growth to occur private sector development must be facilitated by a more efficient and effective public sector that focuses on fulfilling core functions. The development and implementation of the corporatisation/privatisation program is a key indicator of the Government's real commitment to the Economic and Public Sector Reform Program.

Table 1.2 Some Selected Economic Indicators

Year	Growth rate of GDP (%)	Inflation (%)	Growth rate per capita (%)	Balance of Trade (US\$ mil)	External debt outstanding (US\$ mil)	Debt service ratio (%) of exports of goods and services	Budget surplus/deficit (% of GDP)
1996	-0.4	2.8	-2.1	-54.0	62.0	12.8	0.9
1997	0.2	1.8	-0.6	-47.0	61.0	10.7	-4.9
1998	1.6	2.9	0.9	-66.0	60.0	8.2	-2.5
1999	3.1	3.9	2.5	-43.0	67.0	4.0	-0.2
2000	6.2	4.9	5.6	-52.0	62.0	12.1	-0.4
2001	3.0	6.3	2.4	-49.0	58.0	19.5	-2.6
2002 (e)	2.9	10.0	2.3	-53.0			
2002	1.6	10.3					
2003 (e)	1.9	11.1					

Source: Pacific Forum Secretariat (2003)

Given the limited resources status of Tonga, a major shift in both public and private initiatives has been towards efficient utilization of national resources. The public sector is currently undertaken this exercise starting with downsizing its staff force and to maintain or improve productivity using the same or reduced resources (performance indicators). Achieving efficiency is the first step towards improving economic growth. Privatizing public enterprises will reduce overall government spending and thus reduce crowding out of the private sector, a condition conducive for accelerated economic growth. However, government will maintain intervention where market failures exist, however it should do so on a temporary basis, relieving the duty once the market corrects itself.

A far more pressing issue is the distribution of the benefits of development to the people of Tonga. Inequitable distribution of income and other factors of production and consumption have been estimated for rural areas of Tonga (Hardaker, et al., 1988; Abbott et al., 2003). Government has done its best in improving this position and will continue to do so through appropriate ministries and institutions.

1.2 Key Challenges

1.2.1 Impacts of Globalisation, in Particular on Finance and Investments for Sustainable Development

Globalisation has opened up more opportunities for offshore investments on sustainable development. At the same time, negative impacts may occur due to foreign profit making interests taking precedence over sustainable development. Since high seas long line operations were opened for foreign investors there have been some evidence that sustainable yield on some migratory fish species such as tuna are being surpassed resulting in less catches than anticipated. Foreign investors have also depleted other natural resources such as black coral, other marine wildlife, etc. Foreign investments have also boost the production of agricultural exports such as squash pumpkins to Japan and the environmental effects of these commercial activities are now being seriously acknowledged.

1.2.2 Impacts of globalisation on trade and exports, in particular as a result of trade liberalisation

Given the geographical characteristics of Tonga (small land area, relatively high population density, low per capita income, geographically fragmented and remote from metropolitan countries), compounded by frequent natural disasters, the rate of development is constrained and development options are limited.

A small population is a bottleneck to the Kingdom's consumer welfare. The production of certain public utilities involves high overhead costs and thus needs a certain level of economies of scale in order to reduce the unit cost of production and thus cost of living. As a result, Tonga is unable to obtain an international competitive position due to due to its high cost structure. A small population also produces a small labour force that is further wakened by emigration of the top of Tonga's talent pool to pursue better employment opportunities.

With Tonga's small land area, the range of productive activities that could be undertaken is limited. The volume of domestic production is low, as is the range of commodities. This leads not only to domestic exports being highly concentrated on a few primary commodities but also domestic consumption and investment efforts are heavily dependent on imports.

Tonga is inevitably vulnerable to both natural disasters as well as external market shocks. Exports are dominated by small volume primary commodities, such as squash, vanilla, fish, and kava that are sensitive to variations of natural processes (weather, disasters) and are also sensitive to world markets.

Tonga is a price taker in the international market, which is subject to fluctuations in world prices. Since the composition of its exports is dominated by squash alone, the island is confronted with less scope for counter export earnings. Limited production possibilities reduce Tonga's capacity to diversify and adjust to external shocks.

Remoteness from large metropolitan countries is a logistical reality as the island Kingdom is faced with high transportation, communication and information costs that not only impede international factor mobility but also hamper the flow of commercial and technical know-how.

Globalisation is an international issue of huge importance. It is most commonly used in economic term, referring to the observation that in recent years increasing share of economic activities is taking place between people who live outside the country. For example, a growing share of spending on goods and services is devoted to imports from other countries, and a growing share of what a country produces is sold to foreigners as exports. Further, firms based in one country increasingly make investments to establish and run business operation in other countries. Also wealthy investors, mainly from the developed world, increasingly diversify their portfolios to include foreign financial markets (foreign bonds, equities and loans), while borrowers, mainly from poor countries, increasingly turn to foreign sources of funds. All of these forms of globalization raise distinct issues and have distinct consequences.

Tonga cannot effectively compete in the international market with countries having better economies of scale in production and distribution. The global trading environment is

rapidly changing and the margins for preferential treatment to small economies under agreements such as Lome and SPARTECA are rapidly eroding. However, government recognizes the constraints and its domestic policies are being adapted to meet the challenges of this changing environment.

Actions and activities include:

- i) the Tonga Government has applied to accede to the WTO and domestic policies are now tailored to be consistent with WTO principles and obligations. At the same time, with assistance from the Commonwealth Secretariat, government is exploring the negative impacts of the WTO agreements on the country, such as the erosion of special treatment schemes that enabled small economies to survive the competitions of large countries in the international markets;
- ii) there is a series of discussions to form the Pacific Regional Free Trade Agreement (PARTA);
- iii) Tonga has harmonized the System of Custom Tariffs in order to facilitate consistency and comparability in the flow of international trade;
- iv) studies with the help of the PFTAC have been undertaken to revise the Tax Structure in order to shift revenue collection from taxes on international trade and custom duties, to amore direct taxation system, by broadening the existing sales tax system;
- v) a tax reform proposal is being prepared to submit to Cabinet with a prime purpose to facilitate domestic production and shifting tax collection from the wharf to the distributive trade stores; and
- vi) studies and reviews of the IDIs Act and foreign investment regulations have been undertaken.

1.2.3 Urbanisation

Urbanisation has been a real threat to sustainable development for the last two decades or so. It is estimated that around 70 percent of the total population are residing at urban areas of Tonga. This is more so prevalent at Nuku'alofa, the capital, believed to be home for around 20 - 30 percent of the total population. Pressure on public utilities such as water, sanitation, electricity, housing, education, etc., are mounting and have forced government to upgrade these facilities to meet sustainable human requirements.

1.2.4 Natural Disasters

Hurricanes have become more common now than ever before due to the green house effect and El Nino. Tonga now expects 3 to 5 cyclones every year during the normal cyclone season (November – March). Also other forms of natural calamities, e.g. earthquakes, volcanic eruption, tsunami) cannot be ruled out given the location of the country. These have imposed pressures on government and significant resources are allocated each year to the National Disaster and Management Committee to overseas national preparedness and immediate rehabilitation.

1.2.5 Natural resource depletion

Tonga's main natural resources include only its land and seas. Therefore very limited renewable (forests, agriculture, and fish) resources are available and no non-renewable resources (oil, minerals) have been discovered. But there are signs of depletion of limited natural resources, especially land and forests due to mounting commercial pressures from agricultural activities such as squash exports and domestic oriented agriculture.

Another major resource of the country is its people, especially the highly educated portion of the demographic strata. There has been an increasing trend in the migration of professional people (brain drain) and will continue to do so given the less competitive nature of the economy. This can also be advantageous in terms of remittances, anticipated to be sustained at the current level as the global economy continues to be strengthened after the aftermath of many international traumas (9-11, Wars in Afghanistan and Iraq, SARS outbreak, terrorist attacks, etc.).

1.2.6 National security and crime, including issues pertaining to large EEZs (drugs, pollution, poaching, etc.)

Tonga has enjoyed relatively very little need for national security due partly to geographical isolation and perhaps the social setup of the country. However, with increasing contacts with the outside world and the inability to police its large international waters (EEZ), there have been increasing incidences of drugs trafficking, poaching, and other international crime activities that may be detrimental to the national security of the country.

1.2.7 Unemployment

Unemployment is a real problem facing the country. The inability of the public and private sectors to absorb school leavers contributes heavily to this problem. Increase in crime rates has been attributed to this factor.

1.2.8 HIV/AIDS, malaria, other vector borne diseases

Tonga has not escape the wreath of the HIV/AIDS world epidemic. There have been reported cases in the past and some have been victims. The rate of infection is low reflecting the excellent effort between the Ministry of Health and the community on preventative measures. Malaria is not an issue in Tonga, however other vector borne diseases such as dengue fever are sporadic and controllable. The major health concern, however, is non-communicable diseases such as diabetes, high blood pressure, cancer, etc, which now utilized around 20 percent of the Ministry of Health's budget for treatment.

1.2.9 Water and sanitation in rural and urban areas

The MOH (2001) estimated that 97% of the population has access to safe water supply and that 94.0% of all households have adequate sanitation facilities. These are excellent coverage and the major challenge is to maintain water quality that is safe for human consumption and the safe disposal of sanitation wastes.

2. NATIONAL FRAMEWORKS FOR SUSTAINABLE DEVELOPMENT

Context

The Barbados Plan of Action for the Sustainable Development of Small Island Developing States reaffirms the basis for actions in the process to achieve sustainable development as:

- national institutions must be responsive and adaptive to national sustainable development priorities and to ensure that the principles of sustainability guide all future development;
- institutions must integrate environmental consideration with economic imperatives through the national decision-making process, in order that environment and development policy can be carefully integrated;
- interdisciplinary approaches must be adopted at both the planning and decision making levels;
- public participatory process in planning and applications of sustainable development principles is necessary to ensure its integration at all appropriate levels of the society.

The onus then is for the national governments to strengthen institutional arrangements and administrative capacity, including cross-sectoral/inter-ministerial committees and task forces, in order to integrate environment and economic policy into national planning and across sectors and ensure the capacity, including the capacity of NGOs and local communities to implement the Agenda 21 and the decisions of the Global Conference (BPOA, 1994).

This section covers Tonga's response to the Barbados Plan of Action (BPOA) in terms of national frameworks for sustainable development. Specifically this section, reviews relevant policies, legislations, coordination mechanism, lessons learned and concerns relating to national frameworks since the inception of BPOA in 1994.

2.1 Introduction

2.1.1 Foundation of Environmental Management in Tonga

Tonga's land and marine tenure is different from other Pacific Islands countries where customary land and marine tenure were in the hands of the people of the same tribe or community. Tonga was a customary private property rights system controlled by the chief who restricted¹, distributed or allowed 'his'² people to use the resources as he pleases.

The Vava'u Code of Laws and the 1875 Constitution established the basis for the 'modern' land and marine tenure in Tonga. In the Vava'u Code of Laws, the King proclaimed "no person has any title to lands³ in these islands except by grant from the Government", (Maude et al., 1987). Clause 104 of the 1875 Constitution legalises and reaffirms the principles of land holding established earlier by the Vava'u Codes of Law. The 1875 Constitution of Tonga confirmed the King's liberation⁴ of the commoners from the authority of the chiefs and abolished the chiefly privileges; legalises the land tenure; and reaffirms that that people of Tonga could fish 'freely' according to the relevant laws of the country as managed and enforced by the government (Maude et al, 1987).

The *1927 Land Act* prescribes strict rules about the hereditary estates, tax and town allotments, leaseholds and all interests in lands. However, these rules provide conditions for land acquisition rather than any management rules (Prescott, 2002). The Minister of Lands is the representative of the Crown in all matters concerning land and sea in the Kingdom (*1927 Land Act*, s19 (1)). The land and the sea (and its resources) are the property of the Crown (*The Land Act, 1927 & The Territorial Sea and Exclusive*

¹ The chiefs would declare certain food as 'taboos' – or 'eiki' status – reserved for the chief only. Commoners were not allowed to eat these foods however commoners may grow and fish for these to be presented, (Latukeyu, 1947).

² People were regarded as the property of the chief, (Latukeyu, 1947).

³ 'Lands' as interpreted in the Vava'u Code of Laws means the land and the sea including land and sea resources. Land and sea resources were seen as interlink with each other, (Maude, 1965).

⁴ A new Code of Laws (1862) stated the following: 'All chiefs and people are to all intents and purposes set at liberty from serfdom, and all vassalage, from the institution of his law; and it shall not be lawful for any chief ore person, to seize, or take by force, or beg authoritatively, in Tonga fashion, anything from any one', (1862 Code of Laws, Clause XXIV.2; idid.:247).

Economic Zone Act, 1978). Therefore, the rights to all natural resources are vested in the Crown, and the representative of the Crown is the government.

Therefore, Tonga's current environmental and resource management framework is founded in the 1875 Constitution, where it set out the constitutional and administrative structure and establishes the modern land and marine tenure as practiced today. It is apparent, then, that resource management, supporting institutions and management structure in Tonga since the mid -1800s, were based on what was seen as priorities at that time. Although the people of Tonga's priorities have shifted with time, similarly global focus as a result of the UNCED (1992), BPOA (1994) and WSSD (2002) and others have shifted global attention to sustainable development and the need to strengthen institutional arrangements and administrative capacity, the 'original' institutional arrangement remains basically the 'same'.(Prescott, 2003).

2.2 Sustainable Development Policies

The Sixth Five Year Development Plan (DP6) (1991-95) was the first attempt to integrate environmental issues into the national planning framework. DP6 argued that effective support for environmental planning and management will yield economic savings in comparison with potential costs of cleaning and regeneration. The DP6 goal was to "achieve sustainable economic growth conducive to a higher per capita income" (GOT DP6, 1991). Effective environmental management was argued by DP6 to also contribute to other national objectives, particularly to:

- generate more employment opportunities;
- enhance the quality of life by raising health standards; and
- ensure the continued protection and management of natural resources for sustainable development.

The Strategic Development Plan Seven (SDP7), (2000-03) has signaled another major shift in strategy from the five year Development Plans to a Strategic Rolling Development Programme for 3 years instead of the traditional 5 year plan. This shift reflects the need for development objectives and plans to be more adaptable to upcoming issues and a sharp turn from past government's involvement in commercial and economic development activities. The strategy now relies on the private sector as the engine of economic growth (SDP7, 2000). While sustainable development remains an important national objective, and still one of the core functions of government, priority is given to

encouraging investment to stimulate economic activity and employment. This requires the creation of a more favourable environment for the private sector and to withdraw government activities to core functions, which support private sector investment and provide basic services.

Therefore, since the 1994 BPOA, which covers two national development-planning periods (up to present); sustainable development policies started to emerge and viewed as important for supporting the national economic and social development priorities.

2.2.1 National Legislation

There is no single sustainable development (SD) legislation however, there are legislative provisions that could be used and interpreted to have sustainable development objectives or functions vested in several Acts in Tonga. Table 2.1 summarises existing legislation that contain provisions relevant for sustainable development, by sector, strengths and weaknesses and actions needed.

2.2.2 Environmental Impact Assessment Act

The *2003 Environmental Impact Assessment Act* (EIA) recently passed in September 2003 is the first piece of legislation that states SD as its main objective and further provides for public participation. Some of the key features of the Act include the following:

- the main object of the Bill is the achievement of sustainable development (s 3);
- ‘environment’ is defined to include all natural and physical resources as well as ecological, social and economic well-being (s 2);
- section 6 ensures that all major projects must be supported by a environmental impact assessment report;
- significant development projects are defined either as those creating certain class of effect [which allows an interpretative discretion] or those belonging to a certain class of activity which are generally known to create such effects (s 8 & s 9);
- section 16 establishes the Environmental Assessment Committee (EAC) and sets out its membership (made up of the authorities concerned with the issuing of the relevant licenses). It also allows the Chairman to co-opt more members to assist in the discussions of various projects as required;
- section 21 sets out that the Regulations may allow for public participation in the process;

- section 28 sets out the development activities of government agencies will be subject to the Bill

The *EIA Act* provides a framework for development planning which aims to prevent the making of arbitrary land, marine and coastal areas and resources use decision. The Act is fundamentally sound; however, the challenge during implementation is to provide for stronger and more effective public participation, as in sections 16 and 21.

Table 2.1: Summary Table of Existing Legislation that contain provision for sustainable development, by Sector, Strengths & Weaknesses and Action Needed

Sector/Resource used and outputs Responsible Ministry	Existing Legislation	Strengths & Weaknesses	Areas Needing Attention/Action
<p>Agriculture & Forestry/ MAF & MLSNR</p>	<p>Plant Quarantine Act, 1981 as amended</p> <p>Forestry Act, 1961 Part III</p>	<p>Weakness: Conflicting role of Extension officers</p> <p>Lack of EIA guidelines for the consideration of agricultural lease</p> <p>Strength: Provide for the screening of new plants material entering Tonga</p> <p>Weakness: Lack of enforcement</p> <p>Lack of implementation and enforcement; unclear management roles regarding forest reserves particularly with the MLSNR</p>	<p>No regulations</p> <p>Institutional strengthening urgently required, considering the fragility of the island ecosystem to invasive species</p> <p>Lack of distinction between forest reserve for future and productive use and Nature Forest Reserve</p> <p>No regulation</p> <p>It is suggested that EIA provisions be included within the Forests Act</p> <p>All existing laws regulating agricultural activities be reviewed, to ensure environmental protective measures e.g. soil conservation, are make an integral part of the agricultural system; and to ensure that old Acts are brought into line with new policies on the environment, nationally and internationally (i.e. Tonga is a member of FAO and party to related FAO agreements).</p> <p>Environmental factors should be taken into account during inspections carried out in connection with a applications for an agricultural lease</p>
<p>MAF MAF</p>	<p>Forestry Produce Regulations, 1979</p> <p>Pesticide Act, 2000</p>	<p>Strength: Control export of forest produce.</p> <p>Weakness: The regulation do not apply to wood carvings, handicrafts, etc</p> <p>Weakness: Lack of impact assessment for storage facilities and how pesticides and stored, lack of provision to monitor specific pesticide that may posed threats if not managed properly</p>	<p>Lack of enforcement</p> <p>Storage, sale & distribution not covered by the Act, Lack of enforcement provision, need to enact the Draft Pesticide Bill recommended and drafted by the FAO in 1989</p>

Sector/Resource used and outputs Responsible Ministry	Existing Legislation	Strengths & Weaknesses	Areas Needing Attention/Action
Fisheries MOF	Fisheries Act, 1989 (No. 18 of 1989)	Strength: Provide for public participation; strong on monitoring, enforcement of conservation measures; penalties- strong deterrent Weakness: unclear management roles in marine reserves; lack of implementation; conflicting roles of extension officers; loss of stronger marine mammals (whales) protection in the repealed Whaling Industry Act; lack of coordination with relevant government sectors	Need to address lack of coordination with relevant agencies
Land Resources MLSNR MLSNR	Land Act, 1903 and subsequent amendments Section 22 regulate the removal of sand, stone, metal and 'materials'	Weakness – conflicting roles of meeting need for land for residential purposes & protecting/conserving susceptible delicate lands such as swamps, low lying area, etc; The definitions of “land” is too broad – it encompass minerals, water, coastal area, seabed and is no longer appropriate to the development and institutional structure in Tonga at the now and into the future Insufficient monitoring an weak enforcement	Legal land entitlement of male, 16 years and over yrs and over is no longer possible; Land Act need to be reviewed to be inline with government institutional restructure and expansion Alternative sources of sand have to be identified
Water Resources/ TWB MOH MLSNR	Water Board Act and Regulations, 1966 Public Health Act, 1913, s37-45) Cabinet Direction	Weakness: All three measure allows only minimal control of water pollution and does not set standards for the constructions and protections of wells and sanitary facilities; Inadequate penalties for offences/lack of enforcement of protective measures	Overlapping & duplication of functions among the three institutions
Public Health/ MOH, MLSNR, MAF	Public Health Act, 1913 Section 98, on Toxic Waste	Weakness: Conflicts of interest due to overlapping jurisdiction/ penalties for offences very light, weak monitoring & enforcement	Over lapping responsibilities, more trained staff & more resources Strict monitoring and enforcement
Pollution/ MOH, MLSNR, MAF	Petroleum Mining Act, 1969 Garbage Act, 1949 Public Health (Refuse Dumping) Regulation	Weakness: No regulations, lack of enforcement No regulations, lack of enforcement	Lack of institutional capacity, clarify roles between MOH and MLSNR
Industry/ MLCI, TVB	Industrial Development Incentive Act	Weakness: Environmental considerations not taken into account	That granting of licenses be tied to environmental conditions and safeguards

Sector/Resource used and outputs Responsible Ministry	Existing Legislation	Strengths & Weaknesses	Areas Needing Attention/Action
Biodiversity and Wildlife conservation/ (Unclear) but the following play some roles – MAF, MOF, MLNSR	Parks and Reserves Act (Act Nos 11 of 1976 and 20 of 1988) Birds and Fish Preservation (Amendment) Act, 1989	Strength: Provide for the establishment of conservations areas Weakness: No regulation; Authority inactive; Lack of public participation Weakness: no regulations, lack of enforcement, list of protected species are outdated, lack of provision for habitat conservation, lack of public awareness	MLNSR no longer have the capacity; insufficient monitoring and weak enforcement Need to address institutional coordination and sharing of expertise and resources Need to update list of protected species
Transport/ MOW, MOP, MMP, MCA	Traffic Act, 1997; Bicycle Registration Act; Roads Act Shipping Act, 1999; Carriage of Goods by Sea Act; Carriage of passengers and luggage by Sea Act; Harbours Act, 1998; Wharfs Act, 1998; Dock Regulations Act, 1992; Shipping Act; Marine Insurance Act; Ports Authority Act 1998; Petroleum Act; Vessel Replacement Fund Act Civil Aviation Act; Aerodomes Act; Aircraft Offences Act; Carriage by Air Act	Weakness: Lack of expertise and no financial support, ill-managed transport and traffic systems Weakness: Lack of qualified local manpower in various aspects of the transport which results in using expatriate personnel	Need for a revised long-term road construction and maintenance programme with funding commitments Require policy reform to promote cost recovery for an efficient transportation system where assets and the sectors can be maintained at a sustainable level Need further improvement to outer island wharf facilities Need to revise the maritime legislation covering issues such as port safety, pollution and operation
Communications/ DOC	Tonga Communications Corporation (TCC) Act 2000; Radio Communications Act; Telegraph Act; Tonga Broadcasting Commission Act.	Lack of capacity for effective enforcement	Not yet regulated

Source: Prescott, N., 2003

2.3 National Institutions and Administrative Capacity

As reflected in Table 2.1, relevant legislative functions and responsibilities for sustainable development are vested in different institutions. As such, sustainable development principles are ‘seen’ and implemented through the priorities of each agency or sector. Table 2.1 listed important institutions responsible for implementing sustainable develop objectives by sector such as the Ministry of Lands, Survey and Natural Resources (MLSNR), Ministry of Fisheries (MOF), Ministry of Agriculture, Forestry and Food (MAF). However, other government agencies such as the Ministry of Foreign Affairs, Central Planning Department and Prime Ministers Office are key agencies for setting national priorities, coordination and negotiations at the national and international scenes (refer Fig. 2.1).

2.3.1 Ministry of Lands, Survey and Natural Resource

The Ministry of Lands, Survey and Natural Resources (MLSNR) has provisions to make sustainable resource management policies under the 1903 Land Act (and subsequent amendments) and the 1976 Parks and Reserves Act.

Responsibilities for environmental matters were concentrated in an Environmental Planning and Conservation Section (EPACS)⁵ within the MLSNR. However, a recent government restructures created a new DOE effective from July 2001, from EPACS (Cabinet Decision No. 76 January 2000), and place the new DOE under the portfolio of the Deputy Prime Minister. While the status of EPACS has been upgraded to become an independent agency from the MLSNR, the Parks and Reserves Act that prescribed its environmental responsibilities is still under the Minister of Lands and the MLSNR, although relevant skills, capacity and expertise have been transferred to the new DOE.

The Department of Environment carries out the following responsibilities:

- environmental planning and assessment and monitoring
- coordination national environmental activities
- conducting hazardous/solid waste awareness and minimisation programmes

⁵ EPACS - Environment Planning and Conservation Section, within the MLSNR is the old name of DOE (this is the section that implements the environmental functions of the MLSNR)

- coordinating regional, global environmental issues and environmental conventions activities in Tonga; and
- managing the environmental information, education and resource centre (ERIC) (DOE, 2001).

Core functions of the MLSNR are:

- land surveying for the purpose of allocation, land registration, mapping, granting leases
- geodesy surveying
- geological, minerals and water resources survey, monitoring and management
- town planning
- energy planning and coordination

2.3.2 The Ministry of Agriculture, Forestry and Food

Environmental and resource management also lie with other government ministries such as the Ministry of Agriculture and Forestry (MAF). MAF is responsible for the exploitation and conservation of natural resources through the various Divisions of:

- Livestock, where the main area of responsibility is to improve nutrition through improved quality of livestock;
- Research, which concentrates on promoting appropriate crop and animal production technology with specific emphasis on biological and pest control programmes, the production of disease-free planting materials and the propagation of viable tree crop species;
- Quarantine and Quality Management, which concentrates on preventing the introduction of plant pests or diseases from abroad, and the quarantine treatment of commodities;
- Extension, which provides agricultural extension services in the areas outside Nuku'alofa;
- Forestry, where it promotes balanced land use, emphasizing the importance of trees for soil and water conservation, wood production, shelter and for other purposes and the promotion of exotic forest plantation on the island of 'Eua; and
- A new Food Division was recently established to coordinate and promote food security.

2.3.3 The Ministry of Fisheries

The Ministry of Fisheries (MOF), created in 1990 as a separate ministry for the MAF, has the responsibility of conservation, management and development of fisheries. The MOF implements its responsibilities through the following divisions:

- Fisheries Management and Development, which focuses on management of fisheries development to ensure the sustainability of fisheries resources;
- Private sector development, which concentrates on promoting investment in the fisheries sector and marketing of fisheries products;
- Fisheries policies, providing for the development of the ministries policies, the MOF Strategic Plan;
- Aquaculture, which conducts research and trials on introduced or rare marine species in Tonga (MOF, 1999 & 2000).

2.3.4 Tonga Water Board

The Tonga Water Board (TWB) was established in 1966 by the *Water Board Act* (Cap. 92). The principal purpose of the TWB is:

"The Production, Distribution, Control and Management of Water Supply throughout the Kingdom".

The business of the TWB is to provide in a sustainable way, a clean, reliable and adequate supply of water to the people of Tonga.

2.3.5 Ministry of Civil Aviation

The Ministry of Civil Aviation, set-up in 1980 under the Government Act and the Civil Aviation Act, is responsible for the overall administration and regulation of air transport services. These include the operation and maintenance of the various airports throughout the Kingdom, including fire and security services, navigation aids and meteorological services.

Among the mandates of the Ministry of Civil Aviation is to ensure the air transport services and facilities are adequate to support social and economic development and to ensure a high degree of air transport safety.

The Airports are under the direct administration of the Ministry of Civil Aviation.

2.3.6 Education

Education in Tonga dates back to the early 19th Century when the Wesleyan Mission established the first school. The Education Act of 1927 was the beginning of modern secondary education in Tonga and later repealed by the 1974 Act, which is still in force at the present.

Educational Aims

The broad aims laid down for educational development is to provide a balanced programme of education for the full development of children, both as individuals and as productive members of society, by developing Tonga's human resources to meet the country's manpower needs which are required to:

- achieve a high quality of life for the people overall;
- achieve a high standard of living throughout the kingdom;
- respect the options of both present and future generations;
- maintain a highly valued and adaptive culture;
- achieve individual fulfillment;
- achieve political stability; and
- achieve a stable economic and financial environment with less dependence on foreign aid.

As these broad aims are primarily long term, strategies for their achievements are developed and continuously reviewed accordingly.

The major functions of the Ministry of Education are to:

- a. ensure the country is provided with skilled and competent manpower needed for sustainable development;
- b. provide policy advice to the Government on primary, secondary and post-secondary education as well as future directions to meet challenges of the 21st Century
- c. ensure the effective, efficient and equitable implementation of the Education Act and other Government Policies.

2.3.7 National Coordination

The main policy-making and coordination bodies are the Cabinet, Development Coordination Committee (DCC)⁶, Divisional Development Committees – Vava’u Development Committee (VDC)⁷, Ha’apai Development Committee (HDC)⁸, Niua Development Committee (NDC)⁹, ‘Eua Development Committee (EDC)¹⁰, the Government Departments, and Boards (Fig. 2.1). These Cabinet-established national and divisional development committees are the main policy making bodies, providing policy advice on development issues relating to economic and social development of each main island to Cabinet through DCC. However, these divisional Development Committees main tasks evolve around prioritizing or identifying development projects for their divisions that require funding assistance from sources that require government approval or endorsement. An exception to the established process is the VDC that is chaired by the Ministry Foreign Affairs, and submits directly to Cabinet.

The development committees’ members reflect that ‘economic development’ is their main focus. Notable are the absence of the MLSNR and the DOE from these committees, apart from the EDC. As mentioned earlier the MLSNR (prior to the restructure) and now DOE are the two with sustainable development goals and objectives.

⁶ DCC’s members are the Prime Minister (Chairman), Minister of Finance, Minister of Labour, Commerce & Industries, Chief Secretary & Secretary to Cabinet, Secretary for Foreign Affairs, Chief Establishment Officer, Solicitor General and Director of Planning.

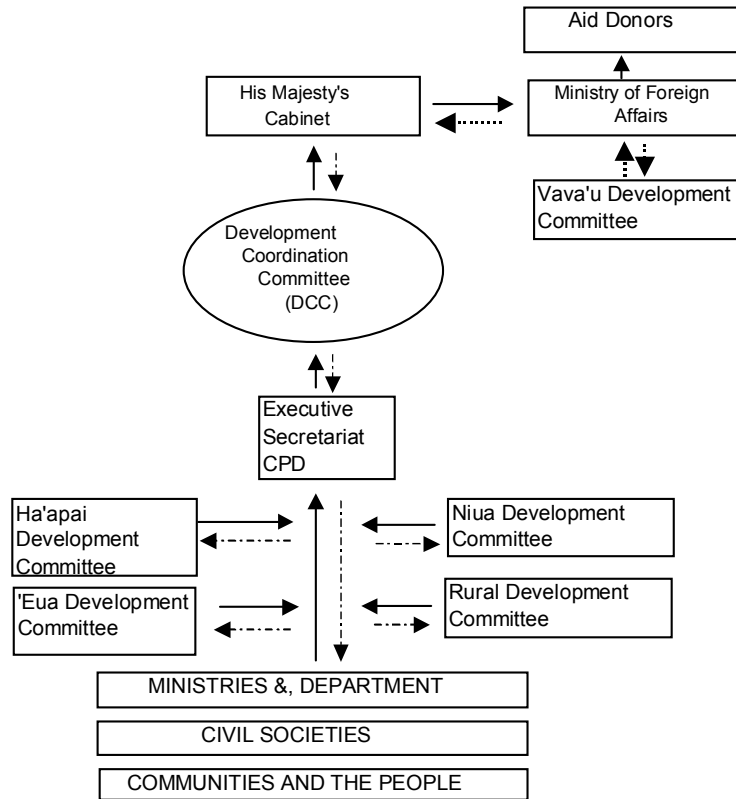
⁷ The members of the Vava’u Development Committee are Prime Minister (Chair), Minister of Works, Minister of Health, Minister of Finance, Governor of Vava’u, No.1 Nobles Representative to Parliament from Vava’u, No.2 Nobles Representative from Vava’u, No.1 Peoples Representative to Parliament from Vava’u, No.2 Peoples Representative to Parliament from Vava’u, Secretary for Finance, Secretary for Foreign Affairs (secretariat)

⁸ The members of the Ha’apai Development are the Minister of Police (Chair), the Governor of Ha’apai, the 2 peoples’ representative to Parliament from Ha’apai, the Minister of Health, and the Secretary for Foreign Affairs, the Director of Tourism, the Director of Central Planning and an Economist, from Central Planning Department.

⁹ The Niua Development Committee members are the Minister of Works (Chairman), Representative of the Noble for Niuatoputapu and Niuafu’ou, Permanent member of NDC (a Nobel), NZ Deputy High Commissioner, People’s Representative to Parliament for Niua, Government Representative for Niuatoputapu, Govt rep for Niuafu’ou, Director of Works, Deputy Secretary for Finance, Deputy Director of CPD, Deputy Director of Works, Central Planning (secretariat).

¹⁰ The ‘Eua Development Committee members are the Minister for Labour, Commerce & Industries (Chairman), Minister of Health, People’s Representative to Parliament for ‘Eua, Government Representative for ‘Eua, Secretary for Foreign Affairs, Secretary for Lands and Survey, Deputy Director of Tourism, Deputy Director of Agriculture and Forestry, Deputy Director of Central Planning (secretariat), Deputy Secretary for Finance, Director of Environment, and Senior Assistant Secretary, Labour & Commerce.

Figure 2.1: Development Decision Structure with Divisional Committees



(Arrows show two ways communication process)

Source: Adapted from CPD, 1999

2.3.8 The Decision Making Process

National policy is initiated and developed by the Central Planning Department (CPD) through the Strategic Development Plan (SDP) in consultation with divisional committees (Section 2.4.4), government agencies, NGOs and donors. The CPD developed a draft and circulated to government departments and boards for comments. CDP amends the draft accordingly, and then submits to DCC for consideration and if approved by DCC, it is submitted to Cabinet with DCC's recommendations for a final approval.

The process suggests that there is a lack of coordination across sectors in policy formulation and there is very limited input from the civil societies. The responsibility,

however, for the implementation of the policies, rests with the public. However, there is no policy decision or law that restricts government departments from consulting other sectors or the civil societies in policy matters. It is entirely at the discretion of each government agency to consult with civil societies if one considered necessary.

2.3.9 Interdepartmental Committees

Inter-ministerial or inter-sectoral coordination is in the forms of interdepartmental committees. Relevant existing committees are the National Environmental Coordination Committee (NEC), National Disaster Preparedness Committee, National Health Advisory Committee, National Tourism Council, and Cabinet Waste Management Committee among others. These committees have one or two representatives from the NGOs or the private sector. Due to the interdisciplinary nature of environmental projects, its members¹¹ are drawn from across various agencies.

The NEC coordinates the following projects:

- Tonga's Strategic Action Programme for the International Waters.
- National Biosafety Framework for the Cartagena Protocol for the Convention on Biological Diversity.
- Kingdom of Tonga's Enabling Activity to prepare its First National Communication in response to its obligation under the United Nations Framework Convention on Climate Change (UNFCCC).
- Tonga National Biodiversity Strategy Action Plan.

2.3.10 Non Governmental Mechanisms for Sustainable Development

At the community level, community groups, women's development committees, youth's groups are common. However, these groups main working objectives doesn't necessary be for SD. The aims range from general community development projects (as in a village water supply support, or to share labour on an agricultural plantation), community income generation activity (as in women's handicrafts). There is an opportunity however, to extend the focus of community groups to include SD principles, where sustainable

¹¹ Director of Environment (Chair), Director of Central Planning, Director of Agriculture and Forestry, Director of Education, Director of Health, Director of Works, Director of Tourism, Secretary of Crown Law, Secretary of Marine and Ports, Secretary of Finance, Secretary of Foreign Affairs, Secretary of Fisheries, Secretary for Lands, Survey and Natural Resources, President – Tonga Association of Non Government Organization

resource management and management of resource use output (minimizing pollution, managing waste etc.) could be incorporated.

There are also a few NGOs who are active advocators and promoters of environmental and socio economic issues relevant for SD. There is also no established communication channel amongst NGOs or between the NGOs and the government therefore dissemination of information and networking is ad hoc.

Three national NGOs have consistently engaged in environment activities are the Tonga Community Development Trust (TT), LangaFonua ‘a Fafine Tonga¹² (LFF) and ‘Aloua Ma’a Tonga (AMT).

Tonga Community Development Trust

The TT is a charitable not-for-profit, non-governmental development organization, established in 1984. It is an affiliate member of the *'Foundation for Peoples of the South Pacific International'*. The Trust has its own governing constitution, and an independent local Board of Directors.

Its goal is “to assist and promote socially, culturally and technologically appropriate development in the Kingdom, with specific interests in the poorest of the poor and the rural/outer island areas of Tonga” (*TT information brochure*). The focus of activities has been primarily in the outer islands, and in the areas of social, human and community development and training. The aim has been “to promote grassroots development, by assisting locally identified and prioritised village-based development projects”.

The Tonga Trust is committed to:

- Working with the people of Tonga in programs that promote and assist sustainable rural development, community development, and human development and training;
- Promoting self-reliant grassroots development;
- Working in collaborative partnership with other agencies to facilitate and promote development in Tonga;
- Providing assistance for all phases of locally identified and prioritised village-based development projects; and

¹² National Women’s Association

- Assisting the less developed, more disadvantaged rural and/or outer-island regions, with a specific interest in the poorest of the poor.

The programmes are currently focused in four key areas: Women in Development; Water Supply and Health; Environment and Natural Resources and Training and Institutional Development. All programmes and costs are supported through donations and support from a variety of donors, agencies, individuals, government and NGOs. Main donors at present are AusAID, UK FSPI partner and Bread for the World (German).

‘Aloua Ma’a Tonga

The AMT was established in 1995 and currently has around 700 subscribed members throughout the Kingdom. Most of the AMTs members are village women’s groups, however some members are registered as individuals. The AMT is managed through a part-time volunteer Executive Committee, which meets on a monthly basis.

The aim of the association is to work with the women and men of Tonga to improve the standard of living of the people at a grassroots level by organising projects and programmes which reflect their needs. The AMT is an affiliated member of the Associated Country Women of the World (ACWW), based in the United Kingdom.

Funding comes from a range of sources including ACWW; AusAID; British Overseas Training programme; Canada fund; Country Women’s Associations in Australia; The governments of Germany, Great Britain; Japan, New Zealand; Tonga and USA; Tongan Women International Society and UNESCO.

Activities of the AMT are currently focused in the following areas¹³:

1. Water Programme:
 - Provision of over 60 cement water tanks to members communities throughout Tongatapu and the islands of Vava’u
 - Provision of ten portable water tanks to low-income, low-lying urban settlements on the outskirts of Nuku’alofa-Patangata-funded by Japan
 - Held workshops to train women on how to build their own cement tanks.
2. Sanitation Programme:

¹³ The following information was taken from AMT Information Brochure.

- Organising land filling and home improvement projects in swampy settlements surrounding Nuku'alofa
- Conducting training sessions in home gardening; traditional medicine, health and the environment
- Implementing and overseeing the building of fence pens for domestically raised pigs

3. Environmental Programme:

- Working with women to produce television programmes which raise awareness of women's development and environmental issues in Tonga, aiming at discouraging the use of disposal nappies.
- Organising the mass collection of empty drink cans to sell to recycling centers for the purpose of donating these funds to ACWW's "Pennies for Friendship" Programme.
- Undertaking the education and rehabilitation of lagoon sites in 14 communities throughout Tongatapu in association with the Department of Environment
- Cleaning up and rehabilitating 19 beaches throughout Tonga in association with the Department of Environment
- Establishing an environmental community groups the Tonga Community Advisory network (TECAN)

4. Handicraft Programme:

- Managing a shop at the Talamahu market as an outlet for women to sell their wares
- Conducting fabric printing/dyeing workshops and paper making workshops
- Overseeing the planting of pandanus and mulberry trees to provide resources for handicrafts
- Holding bi-monthly sewing workshops and floral arrangement workshops.

5. Household Improvement Programme:

- Training in use of and building smokeless stoves and drum ovens in Ha'apai and Vava'u.

6. Social Programme:

- Collection and distribution of food and clothing from members for old and disabled.

7. Education programme:

- Sponsor attendance of member at SPC Education Training Center in Fiji.

8. CLARE Fund:

- Revolving 'loan' fund to assist members in the development activities.

Langafonua 'a Fafine Tonga

The LFF is a national non-profit NGO established in the 1950s by the late Queen Salote Tupou III. The Association is managed through a 36 member Executive Council.

The Goal of the association is “to promote and enhance the development of all women in Tonga through coordination of women’s NGO activities and provision of technical assistance where necessary in consultation with member affiliates”. The main objectives of the association is to ensure the development, growth and well-being of Tongan women; coordinate and monitor the work and programmes of women’s associations in the country; to coordinate and monitor all aspects of the national plans of the women of Tonga; and to promote and enhance the social, cultural, economic and spiritual development of all women in Tonga.

These goals and objectives are achieved through the following: training of member organisation to carry out literacy and awareness activities; disseminate information; supporting community organisation and action; liaise with funding agencies; foster cooperation amongst members; to provide a medium through which its members can speak out on any topic or subject of concern.

The five areas of focus of LFFs work plan cover institutional capacity building for members and other women’s NGOs; economy and employment; health and environment; family and culture, and welfare of children. The LFF is issue rather than community driven. However LFF does not always have the financial and technical capacity to design

and implement programmes to address the above issues. The handicraft center covers some of the LFFs recurrent costs but is not sufficient to enable the organisation to strengthen its organisational capacity. The LFF produces its own quarterly newsletter.

Tonga Association of NGO's

The Tonga Association of NGO's (TANGO) was established in 1990 as the umbrella organisation for all NGO's operating in Tonga, providing technical and practical assistance to the member NGO's. It is a charitable organisation registered under the law of Tonga with a stated purpose to:

- promote technical assistance and services to NGOs where needed
- ensure the views of NGOs are represented in the formulation and implementation of national development plans
- liaise with local and international organisations
- obtain and disseminate information of interest to NGOs
- facilitate cooperation and collaboration among NGOs
- represent the views of Tonga's NGOs to the public
- monitor and coordinate the activities of TANGO

Key institutional capacity constraints noted in the above institutions (also refer Table 2.1) is:

- sustainable development is not 'priority goal' both in the government and NGO sectors
- lack of 'culture' for coordination and for a participatory process in policy and decision making;
- lack of relevant skills and expertise;
- duplication of functions;
- lack of enforcement capacity;
- lack of adequate finances; and
- lack of appropriate regulations.

2.4 Regional Institutions and Technical Cooperation

Although there are numerous regional institutions, this section covers only the institutions that offer technical assistance to Tonga in any of the principles¹⁴ of sustainable development.

The Ministry of Education (MOE) is the agency coordinating several in-country training programmes and scholarships in cooperation with regional institutions. The MOE, Community Development and Training Centre is coordinating a Certificate and Diploma in Infotec and Accounting on line that are bench marks by the New Zealand Polytech Institution in Wellington.

The Tonga Maritime and Polytechnic Institute has received technical assistance from the Secretariat of the Pacific Community (SPC) for maritime training and this assistance is continuous. NZODA has funded several teachers training courses and assisted the Curriculum Development Unit of the MOE. Similarly, the MOE is also coordinating scholarships through bilateral and multilateral assistance in the areas of education, health, law and order, economics and commerce, management and administration, science and technology, agriculture and fisheries and infrastructures played a crucial role in building capacity and transfer of skills and technology for Tonga up to date. The level of study ranges from undergraduates to postgraduates studies. The scholarships have been awarded from the following donors – NZAID, NZPRA, AusAID, ADS, CFTC, ARDS, Canadian Commonwealth, JICA, India and Malaysia.

The South Pacific Sea Level and Climate Monitoring Project has installed a tide gauge at Queen Salote Wharf at its first phase. In the second phase of the project Tonga has participated in all the eight short-term training in collaborating with the National Tidal Facility and Flinders University.

2.5 Specific Lessons Learned

2.5.1 Legislative Constraints

Although one can find evidence of environmental concern from the large body of laws promulgated (Table 2.1), there are deep-seated obstacles to promoting sustainable development. One of those obstacles stems primarily from the fact that national

¹⁴ The following SD principles are inter-dependent and mutually reinforcing - social development and equitable sharing of development benefits, economic development and ecological/environmental protection (CROP Report to WSSD, 2003)

(government) priorities have ‘little’ to do with sustainable development, i.e., reducing unemployment, curbing inflation, reducing balance of trade deficit or raising GDP.

The other constraint is environmental legislation, as an autonomous component within the statutory law, is fairly recent. Legislation dealing with environmental issues has for long been segmented and covered under sectoral themes such as agriculture, forestry, fisheries, health, and lands. As a consequence, the approach to the enforcing and implementing of the legislation is very sectoral with little co-ordination among the agencies concerned. Development of new legislation seems to also follow the existing process and lacks prior consultation among relevant sectors, let alone consultation with the public.

There seems to be very little updating¹⁵ to outmoded legislation that no longer applies to the situation in Tonga, such as in the *Land Act*. Even where amendment has occurred, this is not acted upon or significant environmental provision is lost. An example is in the Fisheries Act with regard to the protections of whales. Further, most of the old legislation is based on models from other countries (British, New Zealand, Australia, Canada etc.), which do not reflect the circumstances of Tonga.

Law enforcement has been difficult, as resources in terms of finance, tools/equipment and manpower for enforcement have not been provided. For example, since the *Forestry Act of 1961*, there has not been any ‘village forest’ reserved. Section 22 of the *Land Act* prohibits cutting of trees within the 15.24 m of the high water mark, yet this is the area where the collection of medicinal plant resources, firewood and wood for light construction purposes has been carried out. Although existing regulations such as in the *Town Regulations* and *Public Health Act (Building) Regulations* prescribes criteria for house location, town cleanliness, planting, cutting of trees, pig and goat control and littering in public places, these have become major environmental hazards throughout Tonga. Most of the legislation that has provisions for environmental protection and conservation is either no longer appropriate to emerging issues such as climate change and sea level rise, transboundary movement of hazardous waste, solid waste and sewage, and protection of biodiversity, land and marine resource degradation among others, or is in urgent need of revision.

¹⁵ Pulea, 1992, reviewed the ‘Environmental Laws’ of Tonga and identified gaps, overlapping and conflicts of legal responsibilities and gave recommendations. These recommendations have not been acted upon

Three of most important pieces of ‘environmental’ legislation namely the *Parks and Reserves Act (1976)*, the *Birds and Fish Preservation Act (Amended), (1989)* and *Pesticide Act (2002)* have no regulation, and their application is therefore pending. This lack of regulation is common in the laws of Tonga.

2.5.2 Lack of Provisions for Public Participation

Although some of Tonga’s legislation provides for public participation, the laws all implicitly provide for the management of the environment natural resources through a central authority. In such a ‘command and control’ approach to management, the control authority determines the terms and conditions of involvement of principal actors in a given activity, based on the information it possesses or made available to it (Ruddle, 1994; Fisher, 1995).

Although the 7 SDP, calls for resource based government institutions, such as MOF, MAF, MLSNR (7, SDP, 2001), to be facilitators of an environment conducive to private sector involvement, and to encourage public involvement and support for sustainable development. This policy seems, however, to have been developed without prior understanding from the concern ministries on how to effectively implement the policy, and the policy has not been translated into law. As expected, therefore, the institutions responsible for implementing the public participation policy fail. However, when there is participation, it may be limited to soliciting of views and advice, merely to satisfy the requirement that there was some form of participation.

The *1989 Fisheries Act* provides limited stakeholder participation in Sections 3¹⁶ and 7¹⁷. The Act empowers the Director of Fisheries, under the direction of the Minister, to establish local committees from professional fishermen (of the fisheries concerned), to consult and advise him or her regarding the number of fishing vessels to be allowed to fish in certain areas or fisheries, and the allocation of licenses (s 7). Section 3 provides for the preparation of fisheries management plans. It is expected that conservation measures, the protection of endangered species, and the zoning of special sensitive areas

¹⁶ Currently, stakeholder participation may occur only in the preparation and review of fishery plans (Fishery Act Section 3)

¹⁷ Stakeholder participation under Section 7 of the Fishery Act cannot occur if local fishing vessel licences were not being issued.

would be included in fishery plans. In the preparation and review of each fishery plan, the Director of Fisheries is required to consult with any local government authority and with local fishermen (s 3 (3)). However, this consultation has not occurred, as there have not been any formal fisheries plans ever prepared or reviewed (AusAID & FAO, 1997).

The power of a District Officer to demarcate a village forest area (*Forestry Act NO. 7, 1961* s 8) has not ever been put to practice. From the records and various reports of the MAF and from anecdotal evidence, there has not been any village forest areas established since the enactment of the Act (Prescott, 2002).

Another possibility for community ‘participation’ is provided by the *Parks and Reserves Act 1976*, where it allows the Parks and Reserves Authority to enter into agreements or arrangements with any person or persons or Government departments for the purpose of carrying into effect any objective or any purpose of the Act (s 6 (e)). However, the Parks Authority is inactive.

2.5.3 Institutional Constraints

2.5.4 Overlapping and Unclear Management Powers

The Minister of Lands can authorise certain activities by issuing leases in specified marine and terrestrial areas. He also has the powers for conservation and management of marine and national parks, and in all government land (*Parks and Reserves Act and the Land Act*). This creates the potential for a conflict with the regulation of fishing by the Minister of Fisheries in accordance with a fishery plan, licensing regime or declaration of a reserve (s 22) for subsistence fishing under the Fisheries Act.

The lack of implementation of the *Fish and Birds Preservation Act* is an example of ‘unclear’ management power. The *Fish and Birds Preservation Act* is considered the most important piece of legislation in Tonga to conserve biodiversity and wildlife (GOT & ESCAP, 1990) yet the MOF, MAF and MLSNR, are not sure ‘who’ is supposed to implement the provisions Act.

The power of the Minister of Agriculture and Forestry under the *1961 Forestry Act* to declare community forests, the power of the Minister of Fisheries under the 1989 Fisheries Act to established community fishing areas and fisheries reserves, and the provision in the *1915 Fish and Birds Preservation Act*, as amended, to establish

‘protected areas’ for biodiversity or wildlife conservation have some common overlapping elements. Further, these powers prescribed in respective legislation depend on the consent of the Minister of Lands, not for any environmental considerations, but through the power of the Minister of Lands to issue leases.

Historical evolution of the laws of Tonga closely reflects the institutions that were established at the time of enactment, such as MLSNR and the MOH. Though issues have changed, e.g., environmental and health issues, the old institutional structure and management traditions still continue, despite obvious constraints. For example, there is no more ‘available’ land for subdivision and allocation, thus land subdivision has extended to the coastal/wet lands, forest areas and agricultural lands with no environmental impact considerations (EIA). Another example is the waste management problems, which is a function of the MOH, however, the magnitude and the emerging different types of waste streams have grown beyond the capacity of the Public Health Division of the MOH and waste management issues have become one the worse environmental threat that Tonga is facing.

2.5.5 Lack of Government Commitment for Sustainable Development

Policy decisions in the form of Privy Council or Cabinet Decisions are in place with the intention of ensuring that environmental considerations are incorporated into the development programmes. However, these are not always acted upon, unless the Cabinet Minister responsible follows through with appropriate implementation strategies. Another problem is that these policy decisions often fall short of recommending relevant legislative amendments, as the new policy may be in conflict with existing legislation or lack legal backing. Although environmental issues and challenges in Tonga now are very different from those of two decades ago, the commitment accorded by the Government, in terms of resources is negligible.

Where the law does not specify enforcement officers, the Ministry of Police is the prosecutor of the laws in Tonga. However, environmental provisions of the laws are ‘new areas’ to the police force e.g., prosecution of illegal fishing in Marine Parks. The Police force does not normally patrol these areas, or have the resources to patrol these areas, resulting in offenders continuing illegal activities. There is an element of appropriate education and awareness raising needed with the police force, together with building joint enforcement strategies with Ministry of Police, and other agencies to improve enforcement by sharing resources and information.

2.5.6 Lack of Appropriate Policy Support

Although sustainable development is a national goal, there is a lack of appropriate national environmental and sustainable development policies. National macro-economic policies and decision-making processes are not integrated across sectors, and environmental considerations do not always feature in these processes. For example, although sustainable development is a national goal and an agency was established to promote this goal (Section 2.4.1) yet the tools (appropriate legislation and policies) are not forthcoming.

Existing measures had been formulated in response to each sector's/agency's particular problems and circumstances rather than as responses to overall national concerns; thus the sectoral perspectives and objectives, rather than national ones have been the underlying parameters guiding the formulation of the existing measures. As long as the environment is accorded low priority by the Government, and as long as there is no machinery in place to ensure consultation and co-ordination among relevant government institutions and the general public, measures to protect the environment will continue to be sector-based, fragmented, and in many cases ineffective.

It is not surprising, as existing institutional structure has been built pragmatically in response to particular issues as perceived by the government at the time. Education, Health, Economic growth (Agriculture, Fisheries, Industries and Trade and Treasury) and land subdivision (Lands and Survey) were the main focus. Even so, the absence of a comprehensive arrangement for integrated policy development among decision makers of these key institutions, presents a barrier to a sustainability approach in policy or management.

To overcome some of the major defects and to ensure that sustainable development principles are integrated at the national level and become more effective, the following deserve serious consideration:

- clear national policies for sustainable development be formulated, based on contributions from all government sectors and institutions, the private sector, and the general public;

- the government should lead in implementing these policies in terms of providing policy support, adequate finances and trained manpower.

The government is supposed to act in the best interests of the people. Current policies on sustainable development issues are sourced from within the government system as a response to events outside Tonga. This is reflected in the policy decisions that are made related to donor-funded projects. Therefore activities are project based; sustainability of project activities after the donor departed is one of the main problems occurring in Tonga (Prescott, 2003).

3. PROGRESS MADE & PROBLEMS ENCOUNTERED IN THE IMPLEMENTATION OF THE BPOA: SECTORAL AND CROSS-SECTORAL AREAS

3.1 SECTORAL AREAS: Progress Made and Problems Encountered

3.1.1 Climate Change and Sea-Level Rise

1. Activities and Progress

The following national projects that have been implemented to address climate change issue in the Kingdom of Tonga.

- a) Coastal Protection Project at Houma Village. This project was funded by SPREP and Executed by Forestry Department. The project involves replanting of coastal trees to protect salt water spraying and the effect of climate change on the coasts adjacent to the Houma Village, Tongatapu.
- b) Kanokupolu Village Foreshore Protection Project. The foreshore protection project at Kanokupolu Village is an attempt by the Kanokupolu community to build a foreshore adjacent to the coastline to prevent further water intrusion in land.
- c) Government Foreshore Protection Programs (Government of Tonga and Government of Japan Bilateral funding project). Building of foreshore on the coastline adjacent to Nuku'alofa areas.
- d) Ha'apai Conservation Area Project – Replanting of coastal trees around the Island of Lifuka, Ha'apai. Important plants were distributed to small islands in the Ha'apai Group.
- e) Tonga Environmental Management Planning Project (TEMPP) – One of the major activities of this project is the replanting of mangroves and coastal trees, to assist addressing the sea level rise and climate change problems in Tonga.
- f) UNFCCC Enabling Activities (GEF/UNDP) – This project involves preparation of Tonga first communication report to the Conference of the Party to the UN Convention on Climate Change.
- g) National Compliance Action Plan for Phasing out Ozone Depleting Substances (ODS).

- h) The World Meteorological Organisation (WMO) – funded, SPREP – executed Regional Meteorological Services Programme.
- i) Agroforestry Project – Replanting of important plants in all tax allotment in Tonga, including medicinal, cultural and native plants to Tonga.
- j) TEMPP project – Coastal trees planting in Tongatapu, executed by Forestry Department.
- k) SPRIG Project in ‘Eua – Replanting of priority trees in ‘Eua such as sandalwood, wood plants, etc.

Regional Project

South Pacific Sea Level Rise and Climate Monitoring Project – Funded by the Australian Government (AusAID), for 14 Pacific island countries. This project involves installation of tide gauge to collect data on sea level rise. In additions national activities (numbered as d,g,h and k above) are the national components or regional projects.

2. Implementation

Tonga has ratified the following conventions and date:

- The United Nation Framework Convention on Climate Change (UNFCCC) on the 29 July 1998.
- The 1985 Vienna Convention on the Protection of Ozone Layer on the 29 July 1998
- The Montreal Protocol on the Substances that deplete the ozone layer on the 29 July 1998.

3. Brief Summary of National Progress and Problems Encountered in the area of Adaptation needs: Capacity Building, Adaptation Technology and, Education.

National Progress in Capacity Building and Education

The important components of all the national and regional projects mentioned above are training and capacity building. Most projects have short training component.

Another form of capacity building is the formal training through scholarships. Several scholarships have been offered to study abroad in areas relevant to climate change. During the last ten years, several local institutes were established in Tonga, including; Government training college, maritime school of technology, community technical

institute; private institute such as Monfort institute of technology, Tupou High School Institute of Technology and USP extension program.

Problems encountered:

- Drift of well educated people for better job opportunity abroad.
- Few specialise personnel in the area of climate change especially on climate modeling, climatology and oceanography.
- Few short term training offered that are relevant to climate change

Adaptation Technology:

- Conservation of forest- establishment of national parks and reserves in Tonga
- ODS - development of Code of Practice for automotives
 - banning the use of equipment that produce CFCs product
- Conservation of Energy – minimise the use or burning of fossil fuel, etc
- Forestry propagation and nursery project

4. Needs and Constraints

With the implementation of the UNFCCC objectives, few constraints have been identified as a panacea to the commitments made by Tonga.

- Lack of funding or financial assistance. It has been found that one of major constraint with related to the implementation of the UNFCCC objectives is financial problem so that Tonga could address adaptation strategies, research, community awareness programmes and planning.
- Lack of coordination among relevant Government agencies in the implementation of the UNFCCC objectives has been identified as a major constraint.
- Data deficiency and gaps create further problems as far as climate change issues are concerned. In Tonga, very limited data on climate change were found from relevant ministries. Even, if data are available, they may not be able to analyse so that they could be used.
- National expert in the area of climate change is lacking.
- Civil society and community in general are not well informed or consulted about the climate change issues especially with its relevancy to social and economic development in Tonga.

3.1.2 Natural and Environmental Disasters

1. National Framework for Risk Management and Disaster Preparedness

- National Disaster Management Plan and Emergency Procedures – This National Disaster Management Plan was produced by the National Disaster Management Office and the National Disaster Management Working Group with the assistance of the South Pacific Disaster Reduction Programme.
- National Marine Oil Spill Contingency Plan – A draft plan has been developed by the Ministry of Marine and Ports with assistance from SPREP PACPOL programme.
- National Fire Management Plan – A plan has been developed.
- Marine Pollution Contingency Plan.
- National Chemical Profile Report – A profile of chemicals in Tonga has been documented and a report has been submitted to UNITAR/UNEP
- Disaster Operational Support Plans, Disaster Organisational Plans, Cyclone Support Plan have been developed as part of National Disaster Management Plan.

Note: Most of the ‘national frameworks’ listed are components of regional projects.

2. National work on Vulnerability Assessments/Indices/Sustainable Development Indicators

Environmental Vulnerability Index – Support by UNEP, Ireland, Italy, and New Zealand. The SOPAC is conducting research and data collection to develop Environmental Vulnerability Index (EVI) report of 235 countries including Tonga. There was a national workshop carried out in Tonga to build awareness of the objectives of the EVI and to initiate the collection of information and data for Tonga.

3. National Progress/Constraint Associated with Early Warning System

- Establishment of a National Disaster Management Office with the Ministry of Works.
- Upgrading of cyclone warning system in Tonga.
- Establishment of a Tonga National Chemical Profile Committee.
- Establishment of Tonga National Monitoring Committee.

- Marine pollution Committee.
- Warning, Activation and Alerting System –Within the context of the National Disaster Management Plan.
- Natural Disaster Early Warning and first aid awareness program by Tonga Red Cross Society.

Note: The above listed ‘progress’ is constrained by the lack of local funds for implementation, maintenance and monitoring, and a reliance on donors, which usually linked to donor-funded projects. However, when the project ends, ‘progress’ is very slow or even ends.

4. Sub regional or Regional Mechanism for Disaster Management

- SOPAC provide financial and technical assistance and mechanism for disaster management in the Pacific Island Countries.
- The South Pacific Disaster Reduction Programme

5. Key Constraints (lack of capacity, investment, infrastructure) related to effective Planning and Implementation of Disaster Management Strategies and Risk Assessment

Lack of capacity:

- The Disaster management office is under staffs (3 staffs)
- Lack of expertise in the area of disaster management
- Lack formal training on the area of disaster management

Investment:

- Lack of investment in the disaster management activities
- not enough commitment by the Government on Disaster management activities
- Lack of funding available to implement planning and risk assessment activities for disaster management

Infrastructure:

- Inefficient infrastructural (appropriate equipments, labs) support for monitoring and risk assessment prior and after disasters

3.1.3 Management of Wastes

1. National and Regional Projects

- Development of a new sanitary waste management site (Tapuhia)
- POPs in PICs project – Shipment of POPs waste to be destroyed in Australia
- POPs – Preparation of National Implementation Plans for Tonga
- National Chemicals Management Profile Report
- ODS – Action Plan for Ozone Depletion Substances
- Waigani – Transboundary movement of Hazardous waste and radioactive materials through the Pacific Island Regions
- Transboundary Movement of Radioactive Material in the Pacific Island Countries
- Sanitation and Reclamation Project – WHO project on sanitation issue in Tonga [year]
- Solid Waste Management – Ministry of Health project on solid waste in Tonga
- SPREP Waste Characterisation Survey 1999
- WHO Waste Characterisation Survey 1996
- Upgrade of Tukumotu Dump site by WHO in 1996
- Recycling program – Atenisi University, Sione Faupula, Coca Cola Amatil Sydney, and Royal Beer Brewery for cans and bottles
- PASA project – Pesticide awareness program
- Composting toilet project in collaboration with the Tonga Water Board and AusAID
- Nuku'alofa water front beautification program
- Tonga International Waters Project (IWP) – Pilot community (Nukuhetulu) under ground water and coastal waters pollution issues
- International Maritime Organisation (IMO), has a program concerned with marine pollution

2. Summary of National Constraint (Technical and Institutional Capacity, Lack of Financing and Infrastructure) related to the Planning, Development and Implementation of Waste Management Systems/Services and Sanitation Services

- Technical and institutional capacity within the key agency (MOH)
- Under cost of the waste management service
- Lack funding for maintenance and management of existing infrastructure

- Poor infrastructure
- Poor coordination between relevant ministries
- Out dated legislation and lack of regulation

3. Describe the Progress made and Constraint Encountered – Developing Integrated Water Resources Management and /or Water Efficiency Plans in Tonga

- Increased awareness of effect of pesticide on environment and health
- Improve water quality and provision for the people of Tonga, almost 99% of the population excess to clean drinking water
- An integrated water resource management is yet to be developed in Tonga. The main constraint is the need for such a plan is yet to be prioritised by the agencies concerned (No. 2 above also listed constraints).

3.1.4 Coastal and Marine Resources

1. EEZ charts and relevant projects relating to the delineation of your country's EEZ

The Cabinet established a Committee known as “Extended Continental Shelf Committee” to 1) look at Tonga’s EEZ 2) Potential claim of Tonga’s continental shelf.

The Royal Proclamation of Tonga EEZ in 1987 still applies i.e. The proclamation defines the extent and boundaries of the Kingdom of Tonga within the latitudes 15° S and 23.5°S and longitudes 173°W and 177°W from the Meridian of Greenwich.

In 1972 a Royal Proclamation defines the islands of Teleki Tokelau (North Minerva Reef) and Teleki Tonga (South of Minerva Reef) and all islands, rocks, reefs, foreshores and water s lying within a radius of twelve miles thereof as part of the Kingdom of Tonga.

Territorial Sea and Exclusive Economic Zone Act 1978 – This act is not yet regulated and enforced. But if it were, it would establish a twelve nautical mile territorial sea and a 200 nautical mile exclusive economic zone.

The Extended Continental Shelf Committee has hired a consultant to carry further investigations and study Tonga's potential claim on the EEZ and extended continental shelf base taking into consideration the existing law and technical information available in Tonga.

1. Activities and Progress

National, sub-regional and regional projects related to the sustainable use, management and conservation of coastal and marine resources.

- TEMPP project – Watershed and lagoon Management Planning for Fanga'uta and Fangakakau Lagoon System.
- Tonga Fisheries Management Project. An AusAid funding project for the management of coastal fisheries in Tonga. Opportunities for community base management approach is trailed in the 'Uiha Island in Ha'apai.
- Development of appropriate legal framework – New Fisheries Bill was developed for the management of the inshore fisheries in Tonga. An Aquaculture Management Act (recently passed in 2003) provides for the sustainable management of aquaculture activities.
- Seaweed (Mozuku) farming Project (FAO, SPADP)
- Takaniko (*Trochus niloticus*) Aquaculture Project. Hundreds of live green snails were introduced from Fiji and release on various reefs in Tonga.
- *Turbo marmoratus* (green snail) Project. Mature green snails were introduced from the republic of Vanuatu and Okinawa Japan into Tonga's reefs. This is an ongoing project managed by the Ministry of Fisheries.
- Introduction of Pearl Farming in Vava'u.
- Humpback Whale Moratorium –Banning the whaling in Tongan waters
- Sea Turtle Program – SPREP initiative to tack and protect sea turtles in the Pacific region.
- SPREP Coral Reef Initiative Program (1997) where SPREP members including Tonga participated.
- Offshore Fisheries Project – This project involved a inventory study of offshore fisheries in Tonga
- Community Clam Circle – Young clams were distributed to villages for enhancement program.

- Ha'apai Conservation Area Project – Promoting community based sustainable management of biodiversity in the Ha'apai group.
- JICA inventory surveys of the marine reserves and the development of a draft marine reserves management plan.
- Global Coral Monitoring Network (GCRMN) techniques of coral survey in Tonga using the AIMS Reef Monitoring and Data Entry System (ARMDES) method.
- EIA studies on aquarium fish and coral trade in Tonga, SPC.
- Aquaculture Development Project involving research, capacity building and improvement to facility, JICA
- TEMPP Mangrove study – species coverage and abundance and the development of a Mangrove Management Plan
- FFA compiled the Fisheries Resources Profiles for the Kingdom of Tonga
- FAO Fisheries Sector Study in 1997 recommended administrative, capacity and policy strategies for the Ministry of Fisheries
- FFA and FAO provided a regional compendium of fisheries legislation
- Survey and assessment of MOZUKU seaweed, cladosiphon spp in Tonga, SPC
- Coral reef, seagrass and water quality monitoring program, Department of Environment
- Reef check program, Department of Environment

3. **Implementation**

Tonga has ratified the following conventions:

- UN Convention on the Law of the Sea, ratified in 31 July 1995
- Convention on Biological Diversity, ratified in 19 May 1998
- Cartagena Protocol on Biosafety, ratified in 18 May 2003

3.1.5 Freshwater Resources

Water resources in Tonga are primary in the form of ground water. Surface water resources are not present in most of the island groups with the exception of 'Eua, Tofua, Niuafu'ou and small fresh water lake in Niuafu'ou and Vava'u. Rainwater is the primary source of water in some islands of Ha'apai, Vava'u and the offshore island of Tongatapu. The sizes of individual islands in Tonga determine sizes of the freshwater lenses. Bigger islands like Tongatapu the underground water can prolong for year with very little rainfall but for small sizes island they only prolong for few months on no rainfall. The

sizes of individual islands in the Kingdom predominantly determine sizes of the freshwater lenses. Certainly, bigger islands like Tongatapu the underground water can prolong for year with very little rainfall but for small sizes island they only prolong for few months on no rainfall. The average recharge for Tongatapu was 30% (520 mm), Lifuka 27% (453 mm) and Vava'u was 40% (888 mm) as determined from data collected between the years 1947 to 2001, (MET, 2002).

There is a profound impact of the present climate variability on groundwater resources in Tonga. The El Nino and the La Nina year have shown high variation in rainfall. In 1983 during the El Nino rainfall was recorded at Nuku'alofa was 838 mm and during the La Nina year of 1999 the recorded rainfall was 2540 mm. This has indicated that the recharge rate was negligible, in contrast to 1999. The average rainfall for Tongatapu is 1749; Lifuka in Ha'apai is 1689 mm and 2199 mm in Vava'u. Apart from the climatic variability, there are also stresses placed on water resources from anthropogenic sources such as crowded human settlements, chemical and biological pollution, land clearing and over-pumping for water supplies.

According to the 1996 Census, out of the total 16,194 households in Tonga, 84.6% (13,705 households) had access to piped water supply (Table 3. 1). It is common for a household to have access to more than one source of water supply. For example, a household may have access to piped water as well as have its own water tank, (Stats Dept, 1999). The 1996 Census also showed that 58.3% (9,444 households) had their own water tank; 2.4% (393 households) had their own well, and 1.1% (175 households) had other sources of water supply.

Table 3.1 Number of households by source of water available to household, 1996

Source of Water	Number of households
Piped	13,705
Own Tank	9,444
Own Well	393
Other	175

(Source: Census 1996)

Water consumption per household per month, in the Greater Nuku'alofa area was estimated at 0.03 ML in 1998. These are only the households that have water meter. For the same year, in Nuku'alofa, it was estimated that 9.06 ML of water was for non-

domestic uses; a total average of 87.67 ML was for domestic uses; and 70.45 ML was unaccounted for (Water Board Data Base). The non-domestic water uses were mainly from the Small Industries Centre and from the service industry such as hotels and motels, and service stations. Water for agricultural purposes was not recorded.

The growth of the capital towns of Nuku'alofa, Neiafu and Pangai will undoubtedly have great impacts on water availability and quality. As the natural recharge of aquifers is controlled by climatic changes, recent monitoring carried out by the Mineral Resources Unit of the Ministry of Lands, Survey and Natural Resources shows a situation of increasing salt concentration (using the WHO Standard for Conductivity – 1,200 μ S). Sustainable development in Tonga without adequate freshwater supply for all its needs and services represents a very bleak outlook for future generations.

1. Activities and Progress

1.1 Programmes and Projects

- SOPAC/EU EDF8 Project Reducing Vulnerability of Pacific ACP States. The overall Objective is the reducing vulnerability of Pacific States through integrated planning and management (island systems management) at the sectors, especially in the sectors impacting on hazards, aggregate and water resources.
- Hydro-geological monitoring of water quality in village water supplies at Tongatapu, Vava'u and Ha'apai on a quarterly basis by the Ministry of Lands, Survey and Natural Resources, Mineral Resources Unit;
- Borehole survey and leveling of borehole to determine accurate total depth to be drilled in relation to the estimated thickness of the water lens by the Mineral Resource Unit of the MLSNR;
- Logging of Drilling Operation carried out solely by the Mineral Resource Unit to control over drilling and the need for empirical data on landform morphology;
- A Draft Water Resource Bill is currently under consideration primarily aimed at sustainable use of the groundwater resource;
- Tonga Water Board Institutional Strengthening Project funded by AusAID covering activities such as legislative review assistance, improvement of Mataki'eua well field, leak detection work, workshop, Neiafu and 'Eua Water Supply improvement project, infiltration galleries for augmentation of freshwater in Pangai;
- Drafting of a new Tonga Water Board Bill;

- The first Tonga Water Board Corporate Plan 1997/2001 has been prepared and implemented;
- Improvement of water flow in low-pressure areas fully funded by the Water Board;
- Continuing series of domestic rainwater catchment projects throughout the entire Kingdom by several NGOs to improve household and community water supply;
- Training workshops of how to build and maintain household cement water tanks;
- Replacing the Water Reticulation System in Nuku'alofa which is more than 30 years old for a better and reliable water supply funded by the Government of Japan; and
- Computerising of the Tonga Water Board Billing System.

2.1 Cooperation & Participation

The Board's members have representatives of the consumers, and the Village Water Committees consists totally of village/community members. Relevant National Committees established by Cabinet, such as the National Health Committee, the Waste Management Committee, the National Environment Committee, and the Development Coordination Committee, all have roles to play in water resources management.

WHO, FAO, SPC, SPREP, UNDP, ADB and bi-lateral assistance have been assisting Tonga in much needed technical and expertise training, capacity building, technical assistance and water infrastructural development for all the 3 authorities responsible for water management.

3.1 Needs & Constraints

- Need to control all leakage in water supply system
- Need for pricing policy which discourages high usage
- Need for a ground water protection measures such as water reserves and non polluting sanitation systems
- Need to assess all available water resources throughout the Kingdom
- Provide water resources monitoring equipment and design, drill and commission more vertical salinity monitoring borehole at sites
- Develop drought vulnerability and response strategies

- Provide formal training in the field of hydrology , hydrogeology, water resource monitoring and engineering
- Provide financial assistance to enhance the research capacity of the water sector in developing additional or supplementary freshwater resources
- Conservation and management of groundwater and the collection and storage of rainwater are critical for the outer islands.
- Coordination and refocusing of aid programmes and project design in needed to assist Tonga to develop water management capacity and to implement projects to improve the sustainability of water supply and usage;
- Outdated legislation and the slowness in the process of enacting of relevant legislation;
- Lack of institutional capacity and vagueness of institutional roles;
- Need for transfer of appropriate and affordable technology to investigate the viability of alternative sources of portable water such a desalination;
- The need for ongoing and appropriate water resources awareness and conservation programmes;
- There is a need to up-grade water testing facilities and laboratories as well as related training for technician.

3.1.6 Land Resources

As land and land resources are limited in Tonga, its sustainable development is a huge challenge. The pressures of the land resources are:

- population density;
- settlement patterns; and
- different forms of land use

Tonga's scare land resources are critical to the maintenance and improvement of diet, health, income -earning opportunities, exports and ultimately, living standards. The 2001-2003 SDP 7 identifies agriculture, fisheries and tourism as the priority sectors for policy development.

2. Date of Ratification/Signature of the Convention on Persistent Organic Pollutants

- Convention on Persistent of Organic Pollutant

Tonga has signed the Stockholm POPs Convention on 22 May 2002. The objective of the POPs project is to develop a National Implementation Plan for Tonga's implementation of the Stockholm Convention. This project will allow Tonga to meet its reporting obligation under the Stockholm POPs Convention. The project will also strengthen national capacity to manage POPs and strengthen chemicals management capacity. The planned output of the project is a national profile, initial POPs inventory, report on assessment of national POPs management infrastructure and a report on the human health and environment. The Department of Environment is the leading Agency for the project.

3. List of relevant project

3.1 List of National Project related to sustainable use, management and conservation of land resources including terrestrial biodiversity

- TEMPP aiming at strengthening Tonga's environmental management capacity
- Tonga Environmental Vulnerability Index (EVI) project
- The objective of this project is to promote environmental vulnerability considerations into national development planning and thereby encouraging sustainable development. The project will develop a robust operational global environmental vulnerability index. This will provide a relatively quick and expensive way of characterising the vulnerability of the natural systems. The EVI will encourage considered responses to issues which may threaten ecosystem integrity on which our future survival and development is depended.
- Management Plan for the 'Eua National Park
- The management sets the basis for the protection of the 'Eua national Park for future generation of Tongans.
- Biological control: (MAF)
- Several programmes are under way to use biological controls to reduce the need for pesticides. This includes biological control of the banana weevil borer, parasites for leaf mites and nematodes to kill the kava beetle and sweet potato pests, as well as viral disease for rhinoceros beetles. Tests are being made at the Vaini experimental farm on intercropping techniques to reduce plant diseases and pests.

- Improved genetic planting material (MAF)
- Disease resistant planting materials (e.g. kava, vanilla etc.) are raised in the MAF Research and trials before releasing to farmers.
- Improved awareness programme
- Attempts have been made to translate instructions of agrochemicals materials into the Tongan language, as well as farmers training. Government-assisted committees, such as the District agricultural committees are important forum for the discussion of agricultural development at the district level or for the preparation for the Royal Agricultural Show.
- Forestry Nursery (MAF)
- The Forestry Division branches in Tongatapu, ‘Eua, Ha’apai and Vava’u nurseries have raised native trees and exotic species, and these are sold to the public at very low prices.
- Inventory of the Coconut Palm Resources, Kingdom of Tonga
- The project was funded by NZODA to take stock of coconut palm resources in Tonga and coordinated by MAF.
- Economic Assessment of ‘Eua Forest Farm (Plantation)
- A study, funded by NZODA, determined the commercial viability of the ‘Eua Forest Plantation.
- Women in Forestry Development Program
- Women's development groups participate in Agroforestry development promoted tree planting, purchasing seedlings, distributing and planting ornamentals, fruits and cultural species. The MAF and DOE support women’s community groups through project development, technical advice and training.
- Coastal Forest Protection and Rehabilitation
- SPREP provided funds to the MAF to establish a pilot project aiming at protection and rehabilitating the coastal forests from 1993-1995. The project sites were Houma through to Ha’akame village and extending west to the Blow Holes area. A strip of coastal land about 1.5 km long and 5-30 m wide of coastal area was cleared and planted with 200,000 seedlings of different species.
- The enactment of the 2003 EIA Legislation
- The object of the Act is sustainable development (refer Section 2.2.2).

3.2 List of Regional Projects Related to Sustainable use, management and conservation of land resources including terrestrial biodiversity

- CBEMP (Capacity Building Environment Management Project)
- The main objective under this project is to build capacity to integrate traditional and non-traditional resources management systems to develop a more effective management system that will contribute to sustainable livelihood for both men and women. This project was funded UNDB and implemented by SPREP.
- National Biodiversity Strategy & Action Plan
- This project is a GEF funded project and UNDP is the implementing agency. This project will enable Tonga to establish a framework to manage its unique biodiversity resources as well as meeting its obligations under the Convention on Biological Diversity (CBD). Over the course of the project, identification and assessment of the biodiversity will ensure leading up to the synthesis and submission of the national Report to the Conference of the Parties (COP). This enabling activity will base on the planning approaches and methodologies described in the UN's Guidelines on the Convention on Biological Biodiversity. The output from this project is the conservation and sustainable use of biodiversity, Identify the incentive measures for the promotion of conservation and sustainable use of the biodiversity, formulate a monitoring programme to routinely assess the implementation of the National Biodiversity Action Plan and the obligation to the Convention, and the development of a programme to mainstreaming of the National Biodiversity Strategy Action Plan in the national decision process and finally is the first National Report to the Conference of the Parties of the CBD.
- International Water Project
- The development objective of this regional project is to achieve global benefits by developing and implementing measures to conserve, sustainably manage and restore coastal and oceanic resources in the Pacific. There are four immediate objectives: the transboundary management mechanisms; conservation and sustainable use of coastal and watershed resources; conservation and sustainable yield of ocean living resources and finally is learning through community based participation.
- South Pacific Sea Level Rise & Climate Change Monitoring Project (SPSLCMP) Phase III

- This project has been in operation since 1991, funded by the Australian Government and aiming at monitoring and carrying out scientific research on Sea Level Rise and climate change within the Pacific Region.
- Asian and Pacific Regional Geodetic campaign 2003 (APRGP)
- This project is a regional project to strengthening the Precise Geodetic infrastructure within the Asia Pacific Region.
- South West Pacific GPS Project
- The scientific research project manages from the Institute of Geological and Nuclear Sciences Limited or from New Zealand. Area of research focused on earth deformation and crust motion on South West Pacific region including Tonga.

4. Needs & Constraints

- There is a need to improved mapping system
- There is a need to upgrade the geodetic and survey control network to ensure more accurate and reliable mapping systems in Tonga.
- Another Aerial Photography run
- A need for a Land Information Center Laboratory
- Need for a revised long-term road construction and maintenance programme with funding commitments;
- Require policy reform to promote cost recovery for an efficient transportation system where assets and the sectors can be maintained at a sustainable level;
- Need further improvement to outer island wharf facilities; and
- Need to strengthen the Telecommunications Unit of the Prime Minister's Office to be able to carry out their tasks efficiently and effectively.

3.1.7 Energy Resources

Tonga is heavily depended on imported oil and petroleum products for energy, particularly for electricity generation. Tongan energy resources and indigenous biomass, solar and wind resources. The petroleum imports account for 30 to 40 per cent of the total energy consumption. Energy plays a crucial role in sustainable development and this relationship is high on the national and international agenda. Limited access to adequate energy services, or shortage of such services, is a barrier to Tonga's social and economic development and the alleviation of poverty. A significant portion of the

population does not have access to basic electricity for lighting, and very few use LPG or kerosene for cooking. It is important for Tonga's national planners and decision-makers to be aware that energy services drive economic and social development and represents an essential bottleneck if not sufficiently available.

The Energy Planning Unit (EPU) of the Ministry of Lands, Survey and Natural Resources there long term vision that by year 2005 the standard of living for all Tongans improves and energy is accessible to all at an affordable and competitive price. Application of energy technology is energy efficient, economically viable and feasible to the environment, social and cultural practices in Tonga, and that the result of which reduces Tonga's dependence on imported oil fuel.

The Goals and Objectives

For EPU of MLSNR had set goals and objectives for year 2002.

Goal 1 is to improve Renewable Energy Customer Services

Goal 2 is to improve Energy project management

Goal 3 is to improve management Capacity and Capability

Goal 4 is to improve Energy Information and Awareness

Goal 5 is to improve renewable energy policies

Goal 6 is to improve Energy Technology Application

Tonga's indigenous energy resources

Oil seepages were discovered in the Kingdom in 1968 and oil and hydrographic exploration began. Five wells were drilled on Tongatapu. Tonga has limited forest areas for fuel wood. There is however abundant sunshine, which is a now harness for energy source. There is minimal usage of wind for water pumping and sailings.

- **Biomass resources**

Fuel wood and coconut husks provide from 60 to 70 per cent of the energy need for Tonga for cooking. Fuel wood for cooking comes from any available source tax api, some of which have sapling trees or dead branches on large trees, left over wood from construction, shipping crates, undeveloped coastal land, including mangrove forests and steep coastal forest, coconut husks and coconut wood and coconut shells are limited. There is no hydroelectric or geothermal potential. Electricity generation is diesel-based. A study was done by the University of Tasmania the preliminary result of the report indicate that a fuel

wood shortage is evident in some area and remaining stands of forest are being rapidly depleted. Experiment was done in Tongatapu on the efficiency of the Jalet wood stove and the findings reveal that fuel efficiency is high. Many attempt to introduce Biogas digesters but the result was poor.

- **Solar Power**

There are numbers of solar usages in Tonga such as solar for water heaters, solar drier, solar electricity.

- **Wave energy has been investigated but is not being pursued as an alternative.**

- **Wind energy**

The wind energy is not steady enough. The analysis of meteorological data has indicated that the wind resource is unsuitable for electricity generators/ Wind power pump has successfully used by the Tonga Water Board.

Conservation measures

At present there are limited conservation measures being taken. For the future energy conservation programmes should be implemented at all governmental and industrial sites. Public participation in energy conservation should be encouraged through educational materialism radio and newspaper activities. It was also recommended by the Pacific regional Assessment report that the Environment Unit be provided with the resources and authority to monitor the implementation of energy projects to ensure that the precautions proposed in the environmental impact assessment are actually carried out.

The pattern of energy use in Tonga during the decade has changed dramatically, reflecting the rapid development of energy-intensive economic activities, thus intensifying Tonga's reliance on imported petroleum products. In 1992, indigenous biomass accounted for 56% of total energy consumed, while petroleum represented the remaining 44% (of which a third was consumed by power generation). By 2001, imported petroleum products captured 54% of the total energy requirement, with biomass, for households and agricultural processing, dropping to 43%. In terms of power generation, electricity grew from 3% in 1991 to roughly 5% by the year 2000, and close to 95% of the potential residential consumers is served. Renewable energy continued to rise from less than 1% in 1990 reaching 2% by 2003.

The main characteristic of the power sub sector is the high demand growth over recent years. The consolidated energy generation for the four systems grew from 24.21 GWh in 1989/90, while sales amounted to 20.01 GWh. By 2001, sales reached approximately 28.8 GWh, a 44% increase during the 10-year period. Energy losses in power transmission declined by 4% (from 13% in 1990 to 9% in 2001). Consumers were estimated at 8,000 in 1992 and 13,000 active consumers in 2001 – a 62% growth, of which 76% are residential, 7% commercial and others accounts for the balance.

The recent rising of oil in the international market as well as a growing demand in the transportation sector accounted for the steep increase in the value of fuel import in Tonga. At least 80% of imported fuel was consumed by the transportation sector during the decade. Retail prices during the decade fluctuated in response to the external markets, when oil prices soared as high as US 45/barrel and plummeted to as low as US 5/barrel. In 1995 retail prices for gasoline was as low as TOP 59.88/litre, 64/lire for diesel, and 54.58/litre for kerosene. During the third quarter of 2001, retail prices per litre reached TOP 1.66 for diesel, 1.44 for gasoline, and 1.45 for kerosene.

The rising fuel demand also impacted on storage capacity. During the third quarter of 2001, oil storage capacity expanded by an additional 2,130 tonnes at Nuku'alofa and 70 tonnes at 'Eua.

The majority of households in rural areas cook primarily with fuel wood and coconut residues. The consumption of biomass has decreased against the growing consumption of petroleum. The purchase price of fuel wood continued to rise in Tongatapu, particularly within the Nuku'alofa area, due to observed supply limitations.

Solar energy is traditionally utilised for crop drying and food preservation. Photovoltaic (PV) technology has been used extensively to provide electricity to rural communities, primarily on outer islands that do not have grid supplier power. It is estimated that 582 PV lighting systems and a community freezer have been installed. By 2003, an additional 170 systems will have been installed at 7 islands at the Ha'apai group and 100 at Niuafu'ou. Solar thermal application for water heating is also well developed on Tongatapu and has expanded in the residential sector and within the tourism industry.

The direct impact of energy services on the environment became visible with traffic smokes in Nuku'alofa and dumped waste oil on the grounds throughout the island group. As commercial energy increased its share of the country's total energy requirements, energy conservation among producers and consumers responsive to energy-saving measures assumed greater importance.

Minimal development occurred in the administrative sector although the privatisation of power generation was achieved in 1998 when Shoreline took over the power generation. The institutional framework is fragmented and the overall management of the sector received low priority that resulted in a lack of focus on important energy issues, which required attention of some central authority.

To date, the primary objective of providing leadership to the sector was to contribute to a balanced approach between energy resource development and supply, on the one hand, and energy conservation, on the other. To this end, it is necessary to redefine the objectives and functions of the central energy institutions to increase the allocation of human and financial resources.

1. Activities and Progress

1.1 National Programmes and Projects

- Ha'apai Solar Power Installation
During April 2002 Energy Planning Section of the Ministry of Lands, Survey and Natural Resources and South Pacific Commission successfully installed 169 solar lighting systems under the SPC's PREFACE project, which was funded by Australia and France. This project is a community -based solar electrification project
- Niuafo'ou Solar Power Generation
The New Zealand government has approved funding for this project from 2002/2003 development budgets
- National energy Database
The Energy Planning Unit of the Ministry of Lands, Survey and Natural Resources has updated the 1980-1993 Energy Statistics to include data up to 2000. Data compilation was for the overall energy demand and supply in Tonga.
- Vava'u solar lighting projects

This project was design for 11 remote islands in the Vava'u group.

- SOPAC Regional Energy Project

This project is to investigate the possibility of implementing a Biomass Project for the region. Geothermal power generation was assessing if it is feasible for Tonga.

- Tonga Solar Rural Electrification Program

The introduction of solar home systems (SHS) in 1986 to outer islands funded 107 systems in Vava'u. By 2000, a total of 580 systems have been externally financed on a grant basis representing an installed peak capacity of approximately 60kw and a total investment of about T\$1.3m. This is the largest in the Pacific apart from French Polynesia and New Caledonia.

- Fuel wood Planting

More than 1000 fuel wood seedlings were distributed by the MLSNR in co-operation with the Ministry of Agriculture, Forestry and Fisheries. The project, funded by SPREP, aimed at replenishing depleted fuel wood stock; raise awareness regarding the link between energy sustainability and the environment.

- Power Sector Reform

The ADB and the government of Tonga signed an agreement for a soft loan to rehabilitate the power station, improve transmission loss and strengthen the capacity of the utility during 1995 - 97. In 1998, power generation was privatised when a private company, Shoreline Ltd, took over the generation for Tongatapu and Vava'u. There are future plans for Shoreline taking over power generation at Ha'apai and 'Eua by the end of 2001.

- Energy Conservation Awareness Raising

Various energy conservation activities directed the attention of thousands of energy consumers to the numerous issues concerning energy efficiency (in terms of fuel conversion, production and distribution, and application), economic implications and the environment impacts of energy application. The NZODA financial assistance funded annual radio programs in the local language, thousands of distributed pamphlets, workshops, lectures, and competitions targeted consumers & end users, operators & caretakers, policy makers, managers, planners, drivers, youth leaders, women groups and school children. In addition, funds allocated by the EU Pacific Regional Energy Program and SOPAC enabled the design of energy curriculum for secondary school to raise children's awareness about energy resources and sustainable development. Teacher guides and students activity booklets will be ready for distribution by 2002.

Workshops in Tongatapu, Vava'u and Ha'apai taught drivers about driving techniques that result in fuel efficiency. Funds were available from NZODA and UNDP.

- Demand Side Management in the Power Sub sector

A demand side management program promoted energy efficiency through power sub sector development, specifically in load management & projections, rehabilitation, and capacity building, and transmission. A reduction of energy losses from 13% down to 9% in power transmission was achieved. ABD granted Tonga funds through a soft loan arrangement.

The public awareness of DSM program was funded by NZODA and activities included workshops for youths, mechanical/technical operators, women and school children. Radio programs ran parallel to the training program.

- Energy Standards & Labeling Program

Petroleum safety and standards training were introduced in 1994, as guidance for oil companies and users of petroleum products, to conform closely to regional and international safety standards in terms of energy conversion, production, transportation, transmission, distribution and application. The Forum Secretariat under UNDP assistance to the energy sector funded the program.

1.2 Regional Programmes Projects

- Regional Network on Biomass, Solar and Wind

The objective of this project is to enrich the knowledge and information source on biomass; to strengthen countries technological and operational capabilities; to stimulate inter-country co-operation; to motivate countries to undertake feasible projects within their resource endowment

- Development and dissemination of low cost improved cooking stoves in rural areas

The development objective of this project will be to conserve national forest resources as well as foreign exchange and to prevent serious degradation of the environment.

- Promotion and application of solar photovoltaic technologies in rural communities

This project is to develop regional country capability to technically and economically assess the role that photovoltaic can make in providing energy for a wide range of rural energy needs.

- Biomass conversion for rural energy supply in developing countries
The objectives of this project is to identify and disseminate promising technologies utilizing biomass for energy production; to assess the achievement, problems and constraints in the application of biomass conversion technologies in developing countries; to promote contacts and facilitate exchange information and experience.
- Solar energy for rural and urban industry in Asia and the Pacific
To establish for the region a pilot plant operation for solar process technology on a commercial scale, to identify and assess solar process energy technology in terms of economies, efficiency and reliability.
- Pacific Island Renewable Energy Project (PIREP)
This project will facilitate the promotion within the Pacific Island Countries of widespread implementation and ultimately, commercialisation of Renewable Energy Technologies through the establishment of a suitable enabling environment. This project will contribute to the facilitation of the growth of profitable transactions and a suitable Renewable Energy market both within and among the countries in the Pacific region that will facilitate up scaling the results of this project to a broader GEF intervention to support RE in the region.

2.3 Cooperation and Participation

Managing the sector was achieved through active participation and co-operation between all concerned in the public and private sectors, including the local and regional communities. Without such efforts little progress would have been visible during the reporting period.

A significant number of energy projects encouraged partnerships between formal institutions and local communities to ensure that projects were sustainable. Quite often communities were involved in energy projects from conception to evaluation. Such approach further strengthened the links between decision-makers and recipients of energy projects, highlighted that energy developments do not exist in a vacuum, and the key to sustainable energy development is co-operation.

3. Capacity Building

3.1 Education and Training

Education and training are essential elements of national energy management programs at the public and private sectors and community levels. Capacity building during the reporting period has focused primarily at strengthening national institutions responsible for energy planning and management by upgrading managerial and technical staffs' skills necessary for effective and efficient energy management. Key focus areas include: formal academic programs (short/long term) at reputable institutions abroad for managerial and technical staffs of the national key institutions (MLSNR, MLCI, TEPB, CPD, & MOW) whereby first or second degree is obtained; training attachments & on the job training with local and multinational institutions in and outside the region; community workshops on prevalent issues.

About forty-two training and workshops, an annual average of four involved more than three thousand and forty people from all walks of life. Additional training, education, and capacity building also took various forms, specifically awareness raising mainly through annual radio & TV programs, the distribution of more than 1000's of pamphlets, posters and stickers, school competitions.

4. Needs & Constraints

- Small and dispersed markets increases the cost of power generation and distribution and the supply of petroleum products; and create problems in establishing institutional arrangement to provide adequate maintenance and support services, whether for grid connected supplied electricity or for photovoltaic installations in the outer islands;
- Need to give higher priority to capacity building in the areas of energy planning and related technical skills;
- Need to restrict energy options to those that are proven technologically and economically similar to Tonga and which can have a significant impact on the local energy situation;
- Need to focus on energy alternatives and technologies that are robust and require minimum maintenance; and

- Need to emphasise proper management of existing alternatives and resources and avoid spreading limited institutional and technical capacity more thinly than necessary.

3.1.8 Tourism Resources

Tourism is seen as a sector with potential to contribute significantly to economic growth and development (CPD, 2001). This potential is based on natural, cultural, and historic attractions. Tonga is being positioned as an ancient Polynesian Kingdom where you can experience and authentic culture (Tonga Tourism Project 2001). Tonga's tourism base is small, and that it is not a mass tourism destination.

Tourism promotion targets special interest markets, particularly those involving marine based activities. There is a need for better accommodation attractions to meet the different need of the visitors. The challenges of geographic remoteness and dispersion must also be managed. A better setting is required to be developed for the international transport and to maintaining of the infrastructure to meet future requirement.

The contribution of the tourism sectors to the national economy has increased and it has become one of the nation's principal export industries and, therefore foreign exchange earner. Consequently, this sector has significantly contributed to employment and it is very important to consider that 50% of the population is under the age of 20 and the employment opportunities are limited. Table 3.2 gives the number of tourists in Tonga in the past five years.

Table 3.2 Number of Visitors Arriving in Tonga in the past 5 years

Year	Number of visitors
1998	45,814
1999	50,419
2000	48,460
2001	43,977
2002	53,576

1. List of relevant Project related to development

1.1 National Project - Community base Initiatives

Nuku'alofa Beautification Project

- Recommendations for this project is for the National Beautification Committee and the Tonga Visitor Bureau be the monitoring body of the Clean-up and Awareness Campaign and devise a meaningful and sustainable method of beautifying the waterfront
- To recruit more people to take care of the waterfront and to upgrade and maintain the public facilities to acceptable standards.
- Immediate implementation of a major Nuku'alofa and waterfront area clean-up should involve all business existing in the area.

Tourism Awareness

- Tourism Project works with Tonga Tourism Association to and the Tonga Visitor Bureau to develop a Tourism Annual Awareness Plan. The Plan outlined a number of Activities for increasing the awareness of tourism among the local community
- The Tonga Tourism News, a news series on tourism events and updates this was being used as major platform to spread news on tourism. This program was being showed in both OBN and Tonga television.

Tourism & Hospitality Training

- The continuing of the training and teaching of tourism training programs for both Community Development Training Center and the 'Ahopanilolo College. Both colleges were now incorporating the training material into their curricula.

Community Clean up Campaign

- This clean up campaign was to ensure that the environment of Nuku'alofa is clean and healthy. Production of two television drama messages on littering by vehicles traveling on the roads, coordination of clean-up activities with the support of business and youth, the Department of environment installation wooden posts in the waterfront to prevent vehicles from driving into the grass areas and the Heilala festival parade with the theme "*A clean Tonga is a healthy Tonga*".

Protection of Resources in Vava'u

- This mini project is to place mooring buoys for yacht mooring around reef areas to prevent damage of reefs by yachts

- Placement of fish aggregation device to improve game fishing and taking pressure off reef fishing.

The NZAID Tonga Nature Tourism Project

- The Nature Tourism Project sponsored by the New Zealand Government and is continuing its support for various activities for Vava'u and 'Eua. Complete 'Eua Tourism Development and Marketing Plan Development.

1.2 Regional Project

South Pacific Humpback Whale Project

The Department of Environment, Ministry of Fisheries and the Tonga Visitor Bureau have been working together on whale watching issues since 1994 in a collaborative project with SPREP.

The major constraining factors, as identified from a report entitled "Tourism Investment Funding Models" for attracting investment into tourism sector in Tonga include the following:

- Land Tenure.
- Taxation System
- Incentives Scheme
- Licensing Process
- Residency Tenure
- Basic Tourist Infrastructure and Services
- Tourism management expertise

Land Tenure System

The current system of land allocation and lease agreements makes it difficult for investors to obtain more secure lease, longer years and particularly on prime tourism development sites.

Taxation System

High overall taxes and duties for foreign investors make Tonga less competitive

Incentives scheme

The current system of incentives for investment has been discretionary and non-transparent in its application.

Licensing System

The issuing of tourist business licenses also needs to be reviewed in terms of an accreditation system for tourism business operators.

Residency Tenure

Requirements for non-Tongan residents offer little security to invest substantial amount of money here in the country.

Basic Tourism Infrastructure and Services

A relatively low standard compared to other more competitive destinations, creating a poor image for the travel trade and potential investors. Ongoing improvements are required in general cleanliness in accommodation facilities, customer service, communication technology, air access and environmental protection.

Tourism management expertise

This requires improvement, particularly in the accommodation sub sector, where many local operators have very high debt to equity ratios, poor budgeting techniques and low profitability. Ready access to reliable, skilled hospitality staff is also limited.

2. Cooperation & Participation

In order for better cooperation and participation to ensure sustainability in tourism development there is a need for the Tonga Visitors Bureau to:

- be given proper technical advice and guidelines through consultation with the relevant government agencies to integrate their activities and address common concerns;
- work together with relevant government agencies and coordinating the need to protect and preserve the environment and at the same time develop specific features of the environment for tourism purposes;
- ensure that the public are made aware of the need to protect and preserve the environment and how tourism could benefit from such as an effort; and
- collaborate with civil society organisations have also been active in promoting beautification competition in villages throughout the islands of Tonga involving women's and youth groups.

3. Capacity Building

3.1 Education and Training

The Community Development Training Center, Ministry of Education is running an 18-month certificate level course in tourism. The syllabus covers marketing and promotion, tourism development, eco-tourism and hospitality.

The 'Ahopanilolo Technical College also runs training courses in tourism covering essentially the same areas.

Beginning in 2002, the Tonga Visitors Bureau will co-host with relevant Government agencies such as the Ministry of Health, Fire Department, Department of Environment, Ministry of Fisheries and Ministry of Marine and Ports, a series of short-term training activities.

3.2 Communication and Awareness

Programmes currently running are as follows:

- A weekly radio program in the Tongan language hosts by the Tonga Visitors Bureau targets the tourism industry and the general public broadcasting information on tourism development activities;
- Beautification competition involves inter-village inspection visits encouraged and sponsored by both Government Agencies and NGOs;
- NGOs also funds drama competitions and visits of drama group to schools and communities with Tonga Visitors Bureau visiting to primary schools and colleges on a clean-up awareness campaign; and
- Aid donor supports efforts to plan a clean-up awareness campaign in collaboration with Government, NGOs, aid donors and the private sector.

4. Needs & Constraints

There is a need to:

- strengthen working relationships between tourism industry, Tonga Visitors Bureau and other appropriate government agencies;

- effectively police and control the activities of the tourism industry to make sure that codes of practice and guidelines are effective tools for sustainable eco-tourism development;
- put in place the capacity for better focus and coordination in tourism development through coordination committees and task forces to designing strategies and long-term plans for eco-tourism development in Tonga;
- expand technical and financial assistance for eco-tourism development in future;
- have a regional body to focus on eco-tourism development in the South Pacific;
- for aid donors to recognise the value of eco-tourism in Pacific island countries and integrate this into their policies and strategies on bilateral and multilateral aid; and
- link together the efforts, strategies and policies of all Pacific Island countries as well as those of regional bodies and aid donors.

3.1.9 Biodiversity Resources

Context

Biodiversity conservation is one of the most difficult environment issues facing small Island States and Tonga is no exception. Often it poses choices between environmental protection and economic development, conflict between landowner rights and the government's growing role in its stewardship responsibilities. However, the Government of Tonga has statutory laws that have provisions for biodiversity conservation (refer Table 2.1).

The Mount Talau National Parks was gazetted 1994. The Ha'apai Conservation Areas was established in 1996. There has been no further marine conservation areas established since 1994 apart for the five marine parks that was established under the Parks and Reserves Act of 1976 prior to 1994.

Inshore biodiversity is vast, however this is the most vulnerable and degraded habitat due to easy and open access, threats from coastal and land based development and threats from natural disasters.

Only limited areas of indigenous forest remain in the Kingdom, primarily in very steep or otherwise inaccessible areas, in coastal littoral areas and swamps or in mangrove swamps.

Agriculture is the principal sector of economy, however, increasing demands for commercial agricultural land poses threats to biodiversity conservation, as habitats are destroyed, and culturally important fauna and flora species become endangered or extinct.

Emerging issues that have significant socio-economic implications for the people of Tonga and the conservation of biodiversity will be addressed by NBSAP and the Biosafety Project.

1. Activities and Progress

- **Establishment of the Ha'apai Conservation Area (HCA)**

The largest in the Pacific under the South Pacific Biodiversity Conservation Programme executed by SPREP. The HCA aims at sustainable biodiversity management. The lead agency for the HCA was DOE. The HCA was funded for the last 7 years from GEF and AusAID.

- **Completion of the ‘Eua National Park Management Plan and partial implementation**

Lead by the DOE and MAF, and funded by NZODA.

- **Establishment of the Parks and Reserves Authority in 1997**

Provided for by the 1976 Parks and Reserves Act for the establishment, preservation and administration of Parks and Reserves.

- **A 10 year ban on beche-de-mer harvesting**

Enforcement by MOF in order for species recovery.

- **Reef restocking programme**

MOF restocking programme such as aquaculture research, shellfish culture of giant clams, green snail (*Turbo marmoratus*) and (*Turbo petholatus*), trochus, (*Trochus niloticus*).

- **Community giant clams circle**

Large adults breeding stocks are scattered in circles to enhance greater breeding success and reseed the surrounding reefs implemented by the MOF, DOE and Community/Village Committees.

- **South Pacific Initiative on Forest Genetic Resources (SPRIG) Program 1998**

A regional project in which Tonga participated with an aim to improve selected species. The project cultivated 5 ha of sandalwood (*Santalum yasi*) at the ‘Eua Forest Plantation, 2 ha in Vava’u and 50,000 seedlings of different coastal species at the Tongatapu Forest Nursery. The project is coordinated by MAF.

- **‘Eua Man & Biosphere Project**

- **Tonga Fisheries Project**

Funded by AusAID in 2002 and coordinated by the Ministry of Fisheries.

- **National Biosafety Framework Project**

A UNEP/GEF Global Project coordinated by the Department of Environment. The implementation of the project commenced in January 2003 and its main objective is to set in place a system of legal, technical and administrative mechanisms to address safety in the field of modern biotechnology.

Tonga's participation in regional and international forum for biodiversity activities arises from the CBD that leads to relevant national programmes such as NBSAP and BioSafety. In Tonga these activities are led by the DOE, MAF, MOFA and relevant civil societies.

2. Implementation

Tonga has acceded to the following Conventions:

- United Nations Law of the Sea 1982;
- Convention of Biodiversity 1995; and
- Cartagena Protocol on Biosafety.

Implementations of relevant national activities and obligations are led by the MOFA, MOF, MLSNR and the DOE.

3. Cooperation & Participation

Regional and international intergovernmental organisation such as UNDP, FAO, SPREP, SPC and non-governmental organisation such as WWF, FSP have assisted Tonga in various initiatives and activities related to Biodiversity.

4. Needs & Constraints

- Existing legislation is very limited and outdated;
- Limited funding for training and awareness programmes in the communities;
- Limited availability of land and the fragility nature of the small, young island ecosystem;
- Limited relevant capacity in Civil Society Organisation;
- Unrealistic timeframes of programmes, while tree growth and other biodiversity enhancement activities are long-term requiring long-term support;
- Pressure on farmers for intensified land-use;
- Lack of realisation of the economic value of standing trees and forest products;
- There is a need to provide resources for enforcement;
- There is a need to monitor and evaluate government and civil societies activities to identify problems, learned from lessons learned and widely disseminate and publicize success stories;
- There is a need to decentralised resource management to include the people who actually use the resource daily;

- Lack of awareness and a holistic approach to the integrated nature of resource management among decision makers which slows down and hinders progress in the area of sustainable management of biodiversity resources;
- There is a need to substantially improve on the actual amount of resources (fund, time, technical experts, activities implemented, monitoring etc) eventually spend in Tonga from regional and global projects; and
- There is a need to preserve traditional knowledge and skills.

3.1.10 Transport and Communication

Context

The general objective for the Transportation and Communications Sectors for Tonga over this decade focussed on the coordination and rationalisation with regards to policy issues, planning, management, operations and maintenance.

Land transportation in Tonga is managed by the Ministry of Works. It is responsible for road construction and maintenance, and all infrastructure construction requirements of Government. As such, the Ministry's objective is to strengthen national construction capacity, allow public safety through appropriate construction standards and related environmental and sanitary requirements.

The Ministry of Civil Aviation, set-up in 1980 under the Government Act and the Civil Aviation Act, is responsible for the overall administration and regulation of air transport services. These include the operation and maintenance of six airports throughout the Kingdom, including fire and security services, navigation aids and meteorological services. Among the mandates of the Ministry of Civil Aviation is to ensure that air transport services and facilities are adequate to support social and economic development and to ensure a high degree of air transport safety.

The Ministry of Marine and Ports (M.M.P) was set-up to provide economically viable port services to Government ensuring safe maritime transportation to users in accordance with acceptable safety standards and be environmentally sustainable. Adequate safety standards and certification norms for Tongan vessels and crews have been established and are enforced by the M.M.P. However, there may be other acts and regulations in this sector that needs firmer enforcement to adequately assist the development of the sector. This will assist Tonga's support for international treaties/conventions in the sector.

The modernisation of communications infrastructure and restructuring of service delivery is essential to the Kingdom of Tonga's overall economic development and prosperity. Its objective is "to improve sector performance to ensure domestic and global connectivity throughout the Kingdom of Tonga. This includes improving quality of service, geographic coverage, service affordability and access to new service application." This is a guide to the overall development of the Kingdom's communication sector.

The Kingdom of Tonga is one of the few countries in the Pacific that has fully deregulated its Communications market. As a direct result of this, Tonga has two companies competing in the communications sector, Tonga Communications Corporation (TCC) and TonFon, with a third license in the approval process. This has led to fully digital exchanges and recently a state of the art wireless system from TonFon. TonFon, the latest entrant into telecommunication arena has established its own system of satellite earth stations throughout the group.

Tonga has been fortunate to receive some infrastructure programmes which reflect the national importance of the sector to the country. Part of these include road construction projects, development work on airports and wharves, and some administrative strengthening in the responsible Ministries.

1. Activities And Progress

1.1 Transportation

- **Establishment of the Department of Safety and Flight Standards**
Formerly established in 2001 within the Ministry of Works to ensure initial and ongoing compliance with all appropriate safety regulations in accordance with Tongan law and the various international obligations of the Kingdom.
- **Infrastructure Development Programme**
Implemented by the M.O.W and funded by AusAID. The project places emphasis on training, institutional development and the introduction of management information systems.
- **Road Improvement in Tongatapu**
A comprehensive road network system and most parts of Tonga can now be accessed by road especially with aid funding from Japan, Australia and New Zealand.
- **Road Policy & Policies Guideline for Public roads & Rights of way**
Cabinet approved in 1996 guidelines for roadwork and established a National Road Committee under the MLSNR to look over the matters relating to road works and charge appropriate fees. Committee membership includes MLSNR, MOW, TEPB, TCC. In the same year, Cabinet directed that roads must be returned to original state after road cuts for utility purpose in the main commercial areas of Nuku'alofa, Neiafu, and Pangai. The Police department's membership in the Road Committee was also an addition.

- **Transport Infrastructure Project**
 The project's objective was to upgrade about 50 km of key urban and rural roads, an international berth at the main port of Nuku'alofa (Queen Salote Wharf) and the facilities at eight inter-island port sites in a cost-efficient, sustainable and prioritised manner. This project also prepared a road safety strategy and supported institutional development of the port sector.
- **Capacity Building Project for M.C.A**
 Project funded by NZODA to assist the M.C.A to undertake its broad range of operations in accordance with local and international Civil Aviation regulations and standards and to plan for the upgrading of facilities and standards.
- **Ha'apai Airport Upgrade**
 Enhanced aviation safety and upgraded tourist facilities is the major benefit of this project.
- **Renovation of Ha'apai Wharf and Ha'ano Jetty**
 Financial assistance from AusAID. These two projects make significant contributions to inter-island transport between Ha'apai and the rest of Tonga.
- **Open Register of Ships Project**
 A Greek company has been contracted to assist Tonga in this project. This Registry is geared for international ship owners who wish to operate under Tongan law and protection.
- **Access to Regional and International Shipping & Airline Networks**
 Tonga has a highly developed network of transport infrastructure. Fu'amotu International Airport in Nuku'alofa and Lupepau'u International Airport in Vava'u serve air travelers while the two international seaports of Queen Salote and Halaevalu cater to shipping requirements. A highly developed network of domestic airports and wharves provide services for regular and efficient international and domestic transportation requirements.
- **Airline and Travel Services**
 Tonga is currently well served by seven international airlines including Tonga's own flag carrier, Royal Tongan Airlines, as well as Air Fiji, Air New Zealand, Air Pacific, Polynesian Airlines, Qantas and Samoa Air.
- **Open skies agreement**
 Tonga Civil Aviation Authority is currently executing a plan of infrastructure development for aviation, in conjunction with the government, which includes the full liberalization of traffic rights by entering into 'open skies' agreements with

partner countries. This agreement is already in place with Samoa and New Zealand. This commitment from Government demonstrates the Kingdom of Tonga's desire to facilitate continued growth in the aviation sector. Ancillary development plans include incentives for long-haul (Asia-USA) flights to operate into Tonga for 'tech-stops' and subsequent market development.

- **Surface Transport and Infrastructure**

Tonga has an efficient transportation systems and infrastructure. Taxis and buses serve the central and outlying areas of Tongatapu for a nominal fee. Rental cars, scooters and bicycles are available for hire. An inter-island ferry system provides passenger and cargo transport on a regular schedule to the outlying islands and atolls of the Tongatapu, Ha'apai and Vava'u Island Groups.

1.2 Communications

- **Telecommunications Unit**

Established in the Prime Minister's Office (PMO) to provide regulatory services for telecommunications, radio and television broadcasting; provide policy advice; and provide policy and direction on the Government's satellite project.

- **Information Technology Strategic Plan**

Funded by AusAID. Aimed at providing a statement of the IT Strategies and priorities for the Civil Service. As a result, the Government Computer Committee (GCC) was formed to coordinate all computer needs/issues for Government.

- **Establishment of Tonga Communications Corporation**

Tonga Communications Corporation (TCC) was established in February 2001 as an integrated provider of network infrastructure and communications services. On this basis, TCC has assumed control of the assets and domestic operations of the Tonga Telecommunications Commission (TTC) and the activities associated with the expired international services franchise of Cable & Wireless.

- **Establishment of Shoreline Communications Ltd.**

A private limited liability company registered in September 2002. Established to operate as a telecommunication carrier. Three subsidiary companies are under this company. These are: Tonfon Voice – offers mobile packages including accessories, phone cards, home phone packages and sim cards; Tonfon Data – offers wireless internet services including installation and maintenance; Tonfon Video – offers 5, 24 hour TV channels. Local branches have been established in the three main island groups – Vava'u, Ha'apai and 'Eua. In addition, overseas

branches located in New Zealand, Australia, San Francisco, Hawaii and Hong Kong.

- **INMARSAT satellite system**

A system to enable telephone calls and faxes made from the Kingdom to any ships in the world.

- **Coastal Watch Station**

Operating from the main island of Tongatapu to provide 24 hour information and communication with the ships that use Tonga's Economic Zone.

- **GSM 900 Mobile Cellular Service**

A new GSM cellular network introduced, superseding the older mobile network that was in place. This new system provides substantially improved digital coverage of Tongatapu, as well as service in Vava'u.

- **Internet Service**

Tonga's two Internet providers are linked to the main Internet backbone via satellite. The TCC arrangement with Teleglobe networks in Canada provides an uplink of 512kbps and the downlink of 2Mbps. Dial-up, RF and leased lines subscriptions can be arranged at speeds ranging from 56kbps to 128kbps. TonFon is routed through the United States where its main switch is housed and has an uplink speed of 1Mbit and a downlink speed of 3Mbps. Wireless Internet service is provided to subscribers at 400kbps, substantially higher than most other Pacific Island nations.

- **International Data Service**

Both providers facilitate access to international data networks through a number of means such as Frame Relay services, Packet Switching and International Private Lease Circuits to local businesses and organisations.

- **TONGASAT**

TONGASAT manages the country's orbital slots and has income-generating lease agreements in place and recently purchased the former COMSTAR D4 telecommunications satellite. Now known as Star Trail, the satellite will deliver commercial telecommunications capacity from its new location over the Indian Ocean 70E, which is one of Tonga's orbital slots.

- **Broadcasting**

Radio and television services are available throughout Tonga in both Tongan and English. Broadcasting media includes AM and FM radio stations, as well as local and satellite television. Tonga is unique in that it is one of the few countries that caters to both of the predominant broadcast systems: PAL and NTSC. The

government-owned Tonga Television broadcasts in PAL facilitating programming from Australia, New Zealand and Europe. The privately-owned Oceania Broadcasting Network, which utilises NTSC formatting, allows for programming from the United States to be viewed. International events and sports events are televised live. TonFon provides five wireless channels in the NTSC format.

2. **Implementation**

International Maritime Organisation Conventions that Tonga has acceded to are as follows:

- IMO Convention 48;
- IMO Amendments 93;
- SOLAS (Safety of Life at Sea) Convention 74;
- SOLAS Protocol 88;
- LOAD LINES Convention 66;
- LOAD LINES Protocol 88;
- TONNAGE Convention 69;
- COLREG (International Regulations for Preventing Collisions at Sea) Convention 72;
- STCW (International Convention on Standards of Training, Certification and Watchkeeping for Seafarers) Convention 78;
- MARPOL (International Convention for the Prevention of Pollution from Ships) 73/78;
- Intervention Convention 69;
- Intervention Protocol 73;
- CLC (International Convention on Civil Liability for Oil Pollution Damage) Convention 69;
- CLC Protocol 92;
- FUND (International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage) Protocol 92;
- PAL Athens Convention relating to the Carriage of Passengers and their Luggage by Sea) Convention 74;
- OPRC (International Convention on Oil Pollution Preparedness, Response and Co-operation) Convention 90;
- FAL (Convention on the Facilitation of International Maritime Traffic 1965); and

- Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation (SUA) 1988 and Protocol of 1988;

Civil Aviation Conventions that Tonga adheres to are as follows:

- Convention on International Civil Aviation;
- Protocol on Authentic Trilingual Text of the Convention on International Civil Aviation;
- Convention on the Unification on Certain Rules relating to International Carriage by Air (Warsaw);
- Hague Protocol;
- Convention on the Suppression on Unlawful Seizure of Aircraft;
- Convention on the Suppression of Unlawful Acts against the Safety of Civil Aviation; Convention on the Privileges and Immunities of the Specialised Agencies; and Mobile Equipment Convention and Aircraft Protocol.

Tonga has also ratified the International Telecommunications Convention 1973 in 1977, has been implemented by the Ministry of Marine & Ports.

3. Cooperation and Participation

Government owns and operates the infrastructure in Tonga. However, the private sector is involved only when government is unable to provide adequate infrastructure, thus the private sector provides a subsidy in particular to road construction, enabling government to provide required infrastructure. Once transport infrastructure is built, government is responsible for its maintenance where possible.

It can also be seen that there is consultation between government and civil society on several matters before decision-making. In other cases, villages participate in decision making if road or access to a village needs improving. The bulk of funds is raised and then a request is submitted for government subsidy to undertake the work.

4. Communication and Awareness

The impact of transport on the environment is not one of the more pressing environmental concerns facing Tonga today. However, Tonga has recognised that there is a growing traffic and vehicle problem in Tonga and will address this in its next Strategic Plan.

Radio and television advertisements are aired on road safety issues as well as on police radio and television programmes reporting weekly traffic violations and accidents.

3.1.11 Science and Technology

National Action, Policies and Measures

- (i) Ensure that science and technology policy is closely linked to national environmental strategies & sustainable development plan and is responsive to local and sectoral sustainable development needs, emphasising, self-sufficiency and the minimisation of import dependency.

The science and technology policy is closely linked to the national plan which is clearly stated in the strategic result areas and policy guidelines of the National Strategic Development Plan 7 as follows:

The first strategic result area (SRA1) is improving comparative advantages and competitive positions. The policy guidelines stated the need to enhance the productivity of labour and industries through training and improvement to technology and management.

The 8th strategic result area (SRA8) stated sustainable utilisation and management of natural resources and the Environment. The central policy guideline is to promote environmentally sustainable development that is consistent with the priority economic and social needs of Tonga.

- (ii) Give greater emphasis to research and development, as well as to training for science and technology and economic development generally, and for environmental and technology assessment in particular: refine analytical tools for natural resource accounting; and encourage the development and use of information and communications technology to overcome size and isolation problems.

Research & Development and Training for Science and technology. The policy guidelines for SRA1 give the mandate to enhance the productivity of labour and industries through training and improvement to technology and management.

Environmental & Technology assessment and Analytical tools for natural resource accounting. The policy guidelines for SRA8 stated the need to support environment management institutions to strengthen their capacity to anticipate, identify, assess and resolve issues of environmental protection, natural resources management, and nature conservation.

Use of Communication and Information Technology (IT). The strategic result area 6 (SRA6) stated the developing of communication and information technology with policy guidelines including training at all levels to ensure maximum benefits are achieved from IT.

- (iii) Promote **research and development** in areas where endogenous technologies and traditional practices have great relevance, including agriculture, agricultural processing, waste-recycling ethnobiology and biotechnology, construction and renewable energy ensuring that mechanisms are in place for the appropriate protection of intellectual property rights in accordance with relevant international conventions.

The National Strategic Result Area 4 stated the need for developing human resources with action programs including scholarships which enables research and development in areas of need specified by the various sectors.

The Industrial Property Act 1994 covering patent, trademark and industrial design.

- (iv) Encourage the use of endogenous, environmentally friendly technologies by establishing regulations, standards and economic incentives.

There are current existing legislation such as Public Health Act 1992 covering air pollution, noise pollution etc. Recently passed in parliament were the Environment Impact Assessment Bill 2003 and the Aquaculture Management Bill 2003 (AMB2003). The AMB2003 is the first bill, to regulate the product from modern biotechnology – the aquatic genetic modified organism.

Tonga encourages the use of endogenous, environmental friendly technologies by implementing multi-sectoral projects that will lead to establishment of regulations, standards etc. such as:

- National Biosafety Framework Project initiated in January 2003 under the Cartagena Protocol on Biosafety to the Convention on Biological Diversity
 - National Biodiversity Strategy and Action Plan Project initiated in July 2003 under the Convention on Biological Diversity
 - International Water Project initiated in 2001
 - Climate Change Project initiated in 2001 under the United Nation Framework Climate Change Convention.
 - Ozone Depletion Substances Project 2003 under the Montreal Protocol to the Vienna Conventions
- (v) Develop or ensure access to databases on **environmentally sound technologies** of local relevance and collect consistent time-series data for monitoring the performance of sustainable development

Under the projects mentioned above, databases are being updated and developed to collect local relevance data for monitoring the performance of sustainable development.

- (vi) Promote and strengthen the role of women in science and technology disciplines.

The nine basic values of the socio-economic development structure for Tonga includes gender equity, stating that men, women, children and the family as a whole have equal access to economic, social, political and religious opportunities and benefits. The SRA4, developing of human resources action programs, stated gender and development policy and action programs. This clearly indicated the incorporation of the interest of women, in Tonga's development policy.

3.1.12 Human Resource Development

1. The National Strategic Plan and the Strategic Plan for Education

Tonga realises the importance of its people and thus the Human Development of its people. Tonga also realises that its only true treasure and resources is its people and have placed the Tongan people at the centre of development but not as one of the many resources for development. This has been vital to the overall social, economic and political development of the country as the country is a developing economy, small, vulnerable to natural disasters and is faced with the problem of insularity and remoteness. In 1997, the Government of Tonga approved the adoption of the National Strategic Development Plan Seven (SDP7) Guidelines to replace the former 5-year comprehensive plan. The Guidelines outline the 9 broad objectives for the current plan period, which will ensure the Government's contribution to national development. The two objectives which are directly involved with this section are for a: *Well educated and skilled labour force, and a healthy population; and to prevent or minimise the degradation of the environment and misuse of resources.*

Based on these objectives, 10 Strategic Result Areas (SRAs) were identified. Amongst these included developing human resources and employment creation.

The vision of the Government of Tonga as stated in SDP7 is in line with the UNDP Human Development Definition. According to SDP7, "The vision for Tonga is that by the year 2025, the Kingdom of Tonga achieves an optimal socio-economic structure achieved by overall development", through the following desired characteristics: high quality of life of the people overall; high standard of living throughout the Kingdom; respecting the options of both present and future generations; high valued and adaptive culture; individual fulfilment; gender equity; political stability; and a stable economic and financial environment. Furthermore, the vision would be achieved within a socio-economic development structure of nine basic values. They are: Political Stability; socially cohesive society; Adaptive culture; Individual fulfilment; Clean healthy environment and sustainable natural resource; High Standard of living; Fair distribution of development benefits; Gender equity; and Budgetary self reliance.

The Social Goals to pursue as set forth in SDP7 are to:

- Elevate Tonga to the High Human Development Category of the UNDP Global, Human Development Index HDI before 2010;
- Full employment and high incomes for both men and women in the labour force;
- Good quality primary, secondary and tertiary education, especially vocational and technical, with equal opportunity and access for both men and women;
- Good health for all in a healthy island setting through healthy homes, healthy schools, healthy villages, healthy and safe work places, healthy towns and urban areas, safe and healthy roads and so forth;
- That all school age children attend school;
- An efficient, high quality and affordable health care service;
- Reduction of population to doctor ratio from 2,279 people to one doctor in 2000 to 823 per doctor by 2015;
- Institutional care and support services for the elderly and vulnerable groups;
- Prevent and minimize pollution of the environment and integrated planning of the use of resources;
- The health risk of settlements in low lying areas and squatters at Tukumotu is solved and eliminated; and
- A social safety net, ensuring an adequate standard of living and quality of life for those in need.

The Strategic Result Area 4 is for the Developing of Human Resources Including Youth and International Sports. The Policy Guidelines are to:

- Diversify and raise the skill level of the Tongan working age population for both men and women;
- 'Education for All' (EFA): women, men, young and old
- Providing quality pre-school, primary, intermediate secondary and tertiary education;
- Providing a quality and adequate health care service;
- Reducing the ratio of population per doctor closer to levels achieved by high income and developed countries;
- Promoting a healthy diet and a healthy lifestyle;
- Addressing the health risks of settlements in swampy areas;
- Promoting the Healthy Island Strategy of the World Health Organisation (WHO);
- Providing social care and a safety net for all especially the elderly and other vulnerable groups;

- Creating opportunities in sports especially for youth;
- Promoting universal and free participation of men and women, young and old, in all spheres of life, socially, politically, economically and culturally; and
- Promote the creation of new jobs by the private sector.

2. Tonga Education Sector Study and the Strategic Plan for Education

In 2002, the Ministry of Education, Tonga and the New Zealand Agency for International Development (NZAID) launched the first ever Tonga Education Sector Study. The only other Ministry which has carried out a Sector Study was the Ministry of Fisheries. The study began in September 2002 and was completed in February 2003. The purpose of the study was “to produce a foundation which assists with efficiency and effectiveness in educational planning and delivery and improved outcomes of future education in Tonga.” And for the study to assist in the development of the Tonga Strategic Plan for Education over the medium Term. The recommendation to carry out the study came as a result of NZODA Programme Strategy Study in March 2001. The Programme Strategy Study recommended:

‘...a goal of building capacity for sustainable and equitable development and self-sufficiency. Building capacity was to be seen in a broad context as building the capacity of government and non-government organisations and communities to identify and solve their own problems, and, while this focus was not limited to education, training or institutional strengthening activities, a prime emphasis was to be placed upon education and training by improving the quality of formal education outcomes in Tonga, and by a greater focus on vocational and technical training. The intention is that New Zealand should prioritise its Tongan bilateral assistance programme to human resource development that best meets identified needs’.

(Tonga Education Sector Study, March 2003)

In August of this year 2003, was the beginning of the work on the Strategic Plan for Education, 2003-2013. The work is being carried out by NZAID, World Bank and the Tonga Government.

The Human Development Indicators for Tonga are provided in Table 3.3 below.

Table 3.3 Human Development Indicators for Tonga

Human development indicators	Most recent years
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Population (thousand)	98.0
Population growth rate	0.3 %
National median age	20.3 yrs
GDP per capita	\$1,868
Life expectancy – Male/Female	68 yrs
Urban population, (% of total)	36 %
Literacy in the Tongan language/English language	99%/70 %
Human development Index	0.647

Source: UNDP, 1999; SPC, 1998; ADB, 2002

Details of Tonga’s commitments to the regional ongoing process such as Education for All (EFA) Action Plan, Conventions on the Right of the Child (CRC), Basic Education Action Plan (BEAP), Pacific Regional Initiative for developing Education (PRIDE); Specialized programme to promote Health (FRESH), Project to promote peace and culture (ASP net), World fit for Children campaign; BALI Consensus and the Millennium Development Goals (MDG) (refer Chapter 5) are addressed in the Report progress, with challenges and strategies to achieve the goals.

3. Commitments to Declarations

Below are some of the meetings and commitments Tonga has to EFA.

The 5th Ministerial Consultation on “Shaping the Future of Children” was held in China from 14 – 16th May 2001 and adopted the:-

“Beijing Declaration on Commitments for children in the East – Asia and the Pacific Region for 2001 – 2010”

Tonga is committed as today’s children are tomorrow’s future generation who must be enabled and equipped to achieve their full human potential and enjoy the full range of human rights in this globalising world.

4. Tonga’s involvement since the 5th Ministerial Consultation

The General Assembly on Children held in New York in 2002

- Re-affirmed commitment for children
- Adopted ‘A World Fit for Children’ campaign to promote Healthy lives
- Provide quality education for all
- To protect children against abuse, exploitation and violence and to combat HIV/AIDS

Tonga has given this Declaration the widest possible publicity in all activities in the different levels of education and right down to the grassroots level.

Pacific Basic Education Forum/Millennium Development Goals Workshop in Fiji 17 – 21 March 2003.

The Workshop was aimed at assisting Pacific Island Countries to better understand the processes and rationale for incorporating the 8 Millennium Development Goals (MDGs) into their national development and planning processes how to tailor these MDGs to the Pacific situation and to provide poverty analysis and policy response skills.

The outcomes from the workshop were draft action plans for implementation of the MDGs at the country level.

It was realised that it is important to recognise that although the Goals are relevant to the Pacific as universal indicators and have already been reflected in longstanding national development plans and strategies, the ways in which the Goals are given shape, through specific targets and indicators – need to reflect national circumstances and realities.

EFA Workshop Fiji - 7 – 11 April 2003

In the EFA Workshop the Action Plan for the attainment of the following goals was reviewed, updated and goals of other Declarations and targets were incorporated. The adoption and ratification of the Convention on the Rights of the Child is almost universal. Tonga has already established a Committee to have the document translated into Tongan and distributed to the public and to implement its provisions.

- Progress
1. The translation of document is done.
 2. The EFA Action Plan recognises the importance of Human Rights in Education in the Pacific and included some of the provisions of the Convention. e.g.
 - the right of all children to have access to Education
 - the right of children and adults to have access to basic life skills, technological life skills and technology.
 - the right of adults to have access to training literacy and numeracy.
 - the right of children, irrespective of gender to receive
 - equitable education programs and services.
 - the right of children to receive quality education.

3. Health issues integrated into the education process
 - healthy environment, teaching learning, project (FRESH)NB. Government Primary School, Fahefa Western District is a model of a healthy school environment both inside and outside.
4. Partnerships with government ministries, NGOs and networks such as ASP net (Peace and Culture) and health promoting schools projects have been strengthened.

Tonga has a Strategic Plan for Responding to HIV/AIDS and STIs - 2001 – 2005.

Priority areas for the response in Tonga are:

- Prevention and control of sexually transmitted infections.
- Reducing the vulnerability of specific groups and promotion of safer sexual behaviour.
- Safe blood supply
- Care and support for people living with HIV/AIDS and their families
- Human rights and HIV/AIDS
- Coordinating the multi – sectoral response care – givers

Progress - Ministry of Health, Education, Tonga National Youth Congress (TNYC), Private Sectors, Church and community based groups and government leaders are working in close partnerships in

- Training quality counselling, spiritual support, outreach, radio/TV programmes and spots family commitment, universal precautions in the homes, dissemination of information leaflets etc.

The Pacific Education Ministers met in 2001 and developed the Forum Basic Education Plan, which reaffirms the region's commitment to the six EFA goals. The vision of the Action Plan is:

“Basic Education as the fundamental building block for society should engender the border life skills that lead to social cohesion and provide the foundations for vocational callings, higher education and life long learning.”

5. Achievements

A. Inputs into the Education System

Infrastructure

Over the past decade, the improved output of Education has increased. This has been made possible with the direction of projects to the strengthening of the whole Education Sector. These projects were mainly for the improvement to the school buildings, which were damaged or destroyed by cyclones.

Curriculum Development

- In 1997 was the creation of the Teacher's Resource Centre in Tongatapu in September.
- In the same year was the Introduction of the Quality Management Programme for the Ministry of Education, beginning at the Curriculum Development Unit (CDU) under the assistance of the New Zealand Government.

The Creation of New Institutions

- **Catholic Women's League** and their **Centre for Women and Children**. Established in 1992 but in 1995, began training on Women's legal rights. Later on it went further into giving training to Youth on their rights and issues related to child abuse.
- In 1993, Diploma courses were introduced at the **Community Development and Training Centre (CDTC)** of the Ministry of Education in Agriculture, Tourism and Hospitality and Accounting Studies.
- The Roman Catholic Church promotes vocational training through the establishment of the **Mont fort Technical Institution** late in 1996. This Institution provides training for school leavers from the Form 5, 6 and 7 levels with training in areas of carpentry, automotive, painting, welding and other craftsmanship.
- **The Tonga Institute of Education (TIST)** was established. This Institution is under the Ministry of Education and it started off as the **Tonga Maritime Polytechnic Institute** which offered only maritime courses. Now, it offers training in other trade areas such as general engineering (Fitting, Tuning, welding, etc.) automotive, plumbing, electrical, carpentry refrigeration and air conditioning at the certificate levels.
- The **Royal School of Science** was established in 1998. It offers courses up to the Bachelor level in Defence and Information Technology. The institution is

administered by the Tonga Defence Services and is located at the Masefield Naval Base.

- In 1999 was the establishment of the **Post graduate Diploma in Teaching** at the Tonga Institute of Education, Ministry of Education for Graduate Teachers. The was a joint venture between the Ministry of Education Tonga and the New Zealand Government. Prior to this, some teachers holding Bachelor Degree but with no teacher training were sent to New Zealand to carry out their teacher training. This was too costly, therefore, it was decided that the training should be carried out in Tonga.
- **Tupou High School of Business.** This Institution is owned by the Free Wesleyan Church and it offers a Certificate and Diploma in Business Studies from the Whitireia Polytechnic Institution of New Zealand. The Institution is located on the same campus as the Tupou High School, which offers High School classes at the Forms 5, 6 and 7 levels.
- A new High School for the Haápai Island Group was created in 2001. This school is known as **Haápai High School** and it began with Form 1 only. In 2002, after the completion of the new school building, which was donated by the People's Republic of China, the school now offers classes from Form 1 to Form 5 in which they sit the national Tonga School Certificate examinations. The establishment of this High School in the outer islands of Haápai was just another move by the Ministry of Education and the Government of Tonga to ease the pressure of overpopulation in the High Schools on the main island of Tongatapu.
- In 2002 was the establishment of the **Tonga Institute of Higher Education (TIHE)**. This institution offers a Bachelors Degree in Accounting and Information Technology through Distance Education with New Zealand. Prior to the Degree programme, the Institution in 1998 offered the Diploma course in Business Studies, specialising in either Accounting or Information Technology. This Diploma is still offered at TIHE.
- In 2002, **Health programme courses** were offered at the TIHE through Distance education for the employees (mostly nurses) of the Ministry of Health.
- In 2002, was also the establishment of the **Institute of Sports**, a Division of the Ministry of Education. This Institute is headed by the Deputy Director of Education for Sports and is currently located at the Government's Indoor Stadium at Tonga College.
- **Diploma in Public Sector Management** with Massey University, New Zealand. There have been 3 intakes so far and the first Intake concentrated only on Middle

and Senior Managers of the Civil Service. In the 2nd and 3rd Intakes, some places were given to people in the Government Statutory Boards.

- **The Short Term Training Centre.** This centre is unique in that it offers short-term In-Country training courses for adults. These short term in-country training courses are usually a week or two long and are meant to increase the skills of the workforce according to the priorities for Human Resource Development set forth in the National Development Plan Seven (SDP7). At the end of each course, the participants are awarded with a Certificate of Attendance. It is not the intention of these trainings to lead up to a formal certification. The countries which offer the training are NZAID and AusAID.

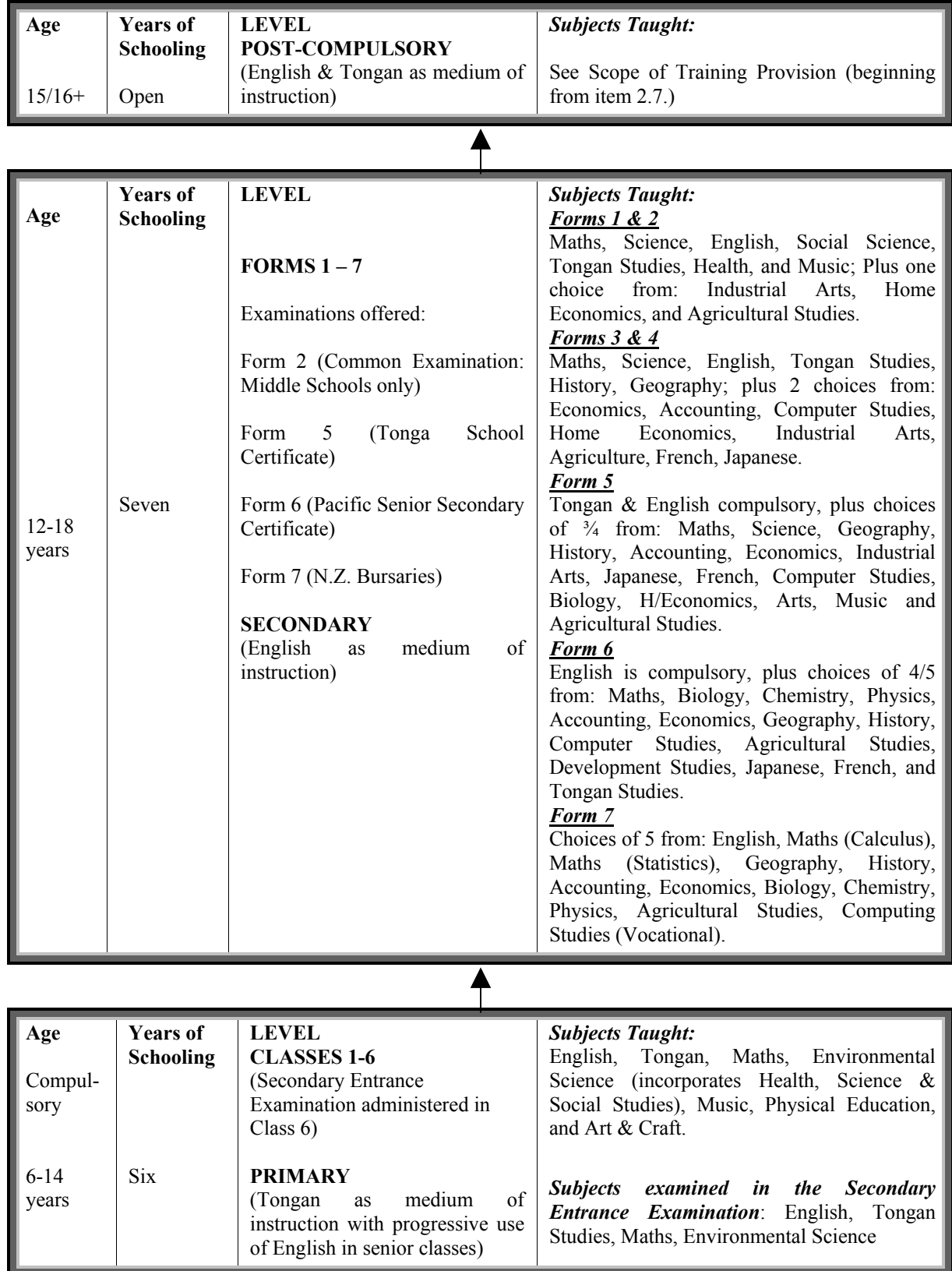
6. The Formal Education Structure

The formal education structure is given below in Figure 3.1. As can be seen from the diagram, Tonga's formal Education is basically academic oriented. There is no technical stream but some technical courses such as Industrial Arts and Development Studies are offered in the schools.

The legal age for Education as directed by the Education Act of 1974 is between the ages of 6-14 years of age. If a child does not attend school, the parents may be fined. According the Ministry of Education's Annual Report 2001, Primary or Basic Education is Universal in Tonga. This has been made possible with the establishment Primary Schools on each island and within 2 walking miles of each child. The participation rate is estimated at 99.9%. Those who do not attend are either severely handicapped or terminally ill and are exempted from school.

There are 5 Major exams offered in this Structure. The first is the Secondary Entrance Examination which is offered at the end of Primary Education, Year six as a selection exam for those who will enter the High Schools. The rest of the examinations are given in the High Schools and they are: the Form 2 Common Exams, given in Form 2, the Tonga School Certificate (TSC) given at Form 5, the Pacific Senior Secondary Examinations (PSSC) offered at Form 6; and the New Zealand Bursary offered at Form 7, the final year of Secondary Education.

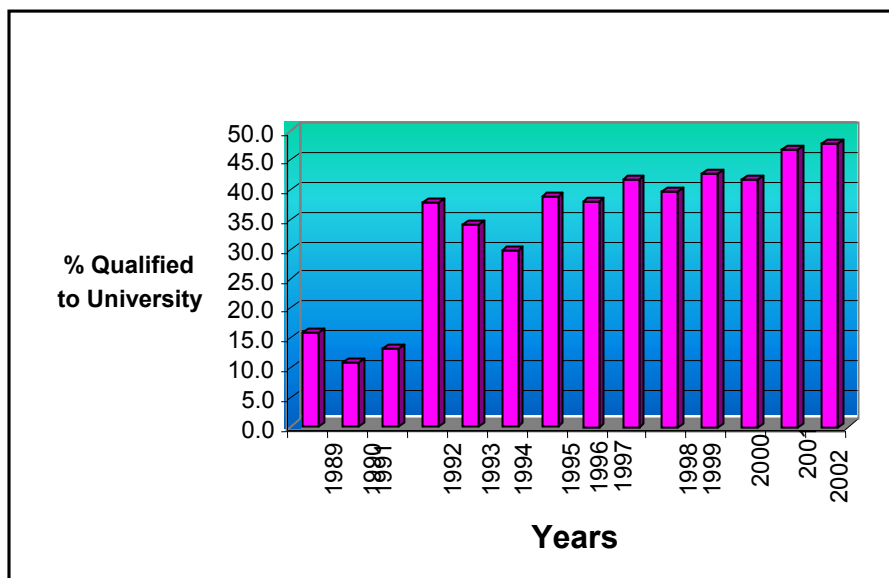
Figure 3.1: Tonga’s Education System - The Formal Structure



7. Results of National Examinations in Tonga since 1989

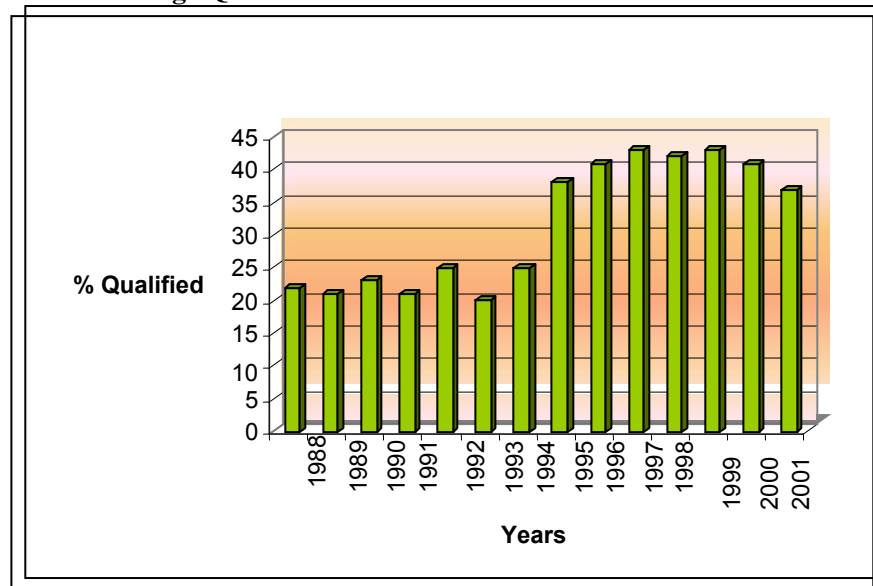
Figure 3.2 below shows the percentage of those who qualified to enter University or the Form 7 level. Between the years 1989 and 1990, the percentage of those who qualified was below 15 percent but 1991, the percentage suddenly increased to about 37 percent. Since 1994, the percentage has been growing steadily.

Figure 3.2: Results of the PSSC since 1989



Over the past decade, the percentage of students who have qualified to enter Form 6 in Secondary schools throughout Tonga showed some increase between the years 1995 and 1999. In 2000 and 2001, there is a slight decrease in the percentage of students who have qualified to enter Form 6 as presented in Figure 3.3.

Figure 3.3: Percentage Qualified to Form 6



Below in Tables 3.4 and 3.5 are the results of the Form 7 Bursary Examinations.

Table 3.4 Results of the NZ Bursaries Examinations since 1991 for Tonga High School National Form 7 only

Year	No. of candidates	No. Qualified to University	% Qualified to University
1991	36	36	100
1992	90	90	100
1993	84	73	86.9
1994	97	66	68.0
1995	96	64	66.6
1996	109	76	69.7
1997	117	74	63.2
1998	120	84	70
1999	108	52	48
2000	104	33	32
2001	110	59	54

Table 3.5 Results of the NZ Bursaries Examinations: 1999 - 2001

School	No. of candidates			No. Qualified			% Qualified			% +/-	
	1999	2000	2001	1999	2000	2001	1999	2000	2001	2000	2001
Tonga High School National Form 7	108	104	110	52	56	59	48	54	54	+6	-
Tonga College Form 7	36	25	26	11	8	11	31	32	42	+1	+10
Lavengamalie College Form 7	20	16	17	7	2	4	24	13	24	-11	+11
Liahona High School Form 7	25	-	-	9	-	-	36	-	-	-	-
Vava'u High School Form 7	-	-	25	-	-	3	-	-	12	-	-
TOTAL	189	145	178	79	66	77	139	99	132	-40	+33

8. Needs and Constraints

The lack of basic facilities and resources again still prevails. Tonga does not have immediate access to the latest resource materials and technology and are reliant on local teachers being able to travel overseas for relevant workshops or trainers coming in to the country with the expertise. Teachers who have trained and qualified overseas do return to Tonga for a specified period of time to repay their debt to the government. They bring the knowledge of the latest advances with them but many do not remain in Tonga as the financial rewards and conditions of teaching in other countries are more attractive with educational advantages for their children.

A large portion of the allocated budget from Government goes toward payment of teachers salaries leaving very little surplus for operational services and maintenance in all levels of education.

The challenge now remains to improve every aspect of the quality of Education, and ensuring their excellence so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

Quality is at the heart of education and what takes place in classrooms and other learning environments is fundamentally important to the future well-being of children, young people and adults.

As Education for All is a basic human right at the heart of development, it is therefore a national priority for development. It is a national and international priority and it required a strong and sustained political commitment, enhanced financial allocations and the participation of all partners. Partnerships have been established and strengthened.

Tonga with limited resources is making every effort to achieve universal basic education. An important member of the “partners” that must be in the care and protection of children is the family. Support must be given to strengthen their roles. As part of our commitment to partnerships, Tonga has taken the opportunities to use expertise and resources available in other countries in the region in this global concern to give and make a world fit for children.

The main consideration for donor agencies would be primarily for any assistance which would assist with the above. Consequently the meeting of financial targets is impossible without donor aid.

3.2 CROSS-SECTORAL AREAS

3.2.1 Financing and Investment for Sustainable Development

Over the past decade, Tonga experienced substantial amount of financing and investment for sustainable development in different forms. Tonga’s leading initiative on financing and investment for sustainable development were provided on the national annual budget. The preparation of national budget was integrated into national vision and priority areas stated in the national Strategic Development Plan 7 (SDP 7, 2001-2003). Government believes that balance economic, social and environmental development would create development that meets the present needs without compromising the ability of future generations to meet their own needs. Multilateral agencies include Asian Development Bank (ADB) and World Bank (WB) and its Country Strategy and Lending Program has indicated initiatives in area of financing and investment to achieve sustainable social and economic developments. In addition, official development assistance or foreign aid is another major source of development financing for sustainable development in Tonga. Aid flows to the Pacific region are dominated by transfer from bilateral donors.

However, foreign aid in Tonga is now generally perceived successful in providing satisfactory growth performance. A wide range of multilateral and bilateral donor assistance to Tonga whether in the form of modest grants or larger-scale funding has both directly targeted public sectors and indirectly through community-oriented projects. These broader initiatives have addressed a variety of development needs such as water/sanitation, education and school facilities, utilities and environmental management, which usually have implication for health, well-being and overall sustainable development.

Tonga's principal multilateral and bilateral funding agencies include the European Union (EU), Australian Agency for International Development (AusAID), and New Zealand's Ministry of Foreign Affairs and Trade (MFAT). Project based assistance has provided by the Government of the People's Republic of China (PRC) and the Japan International Cooperation Agency (JICA). The European assistance has focused on infrastructure development in the Vava'u group, and the World Bank program is focus on human resource development and institutional strengthening in health, public expenditure management, the legal sector, and fisheries. New Zealand assistance focuses on human resource development, outer islands and community development, private sector development, and public enterprise reform. China assistance is in the education sector and JICA supports water supply infrastructure development.

Tonga's national initiatives in the areas of financing and investment for sustainable development stems from its national budget, multilateral country strategy and lending program, as well as bilateral transfer the official development assistance.

As cited above, Tonga's national budget is the prime financing and investment approach for sustainable development. On the current financial year, the government budget has established Contingency Fund aimed to cover unbudgeted items which will emerge in the future. This initiative provides opportunity to the government to response for emergency financial needs that related to sustainable development. Tonga's national Strategic Development Plan 7 (SDP 7, 2001-2003) stated that economic areas for policy development covered agriculture, fisheries and tourism sectors which are also integrated to formulating of budget policies.

The multilateral agencies country strategy and lending program provides substantial financing and investment for Tonga. The ADB is one of principal multilateral agency that provides considerable investment for sustainable development. The ADB's strategy

for Tonga supports the government development objectives. The ADB Country Strategy and Program Update (CSPU) for 2004-2006 stated that assistance will continue the focus to the government reform program to (i) build an efficient public sector and enhance public sector governance institutions, (ii) establish enabling environment to help private sector development; and (iii) encourage growth of agriculture based businesses for export through better policy environment, improved market information and access. ADB key projects in 2004-2006 will focus on (i) continuing public sector reform, in particular to significantly reduce subsidies to public enterprises through improved efficiency and privatizing non-core commercial enterprises; and (ii) stimulating economic activities in the natural resource sector such as agriculture and fisheries. The ADB is also planning to provide financing for Public Enterprise Rationalization as well as assistance support for Agriculture Sector Development in 2005.

The World Bank as well has initiatives of financing and investment for sustainable investment in Tonga. The Bank's assistance to Tonga is guided by the Pacific Regional Strategy (May 2002) and planning an Education Project in financial year 2005. This project is expected to be financed by a number of co financiers and is planned to be a Sector Wide Approach Project. The World Bank is currently financing one on-going project "Cyclone Emergency Recovery and Management Project" and provides credit through government loan for Health Sector Support Project.

The dominance of bilateral donors and the scale of grant aid have significantly reduced the demand for loan funds, with the exception of larger scale of infrastructure projects. Traditionally, the bilateral donors have focused less on policy conditionality and more on providing finance for projects, technical assistance and other services. As mentioned, the Government of New Zealand, Australia, Japan, German, Canada, People's of the Republic of China and the European Union remain the key sources of aid for sustainable development in Tonga.

The reflection of sustainable development as a national priority will attract increased donor support in the form of development scheme, loan funds and technical assistance. Sustainable development has declared on Tonga's national Strategic Development Plan 7 (SDP 7, 2001-2003), however, the securing of fund for sustainable development is not without constraint. The secure of finance prior to disbursement according to implementation plan is a vital phase. The differences between donor and recipient must be well addressed and the donor conditions to release the fund must be met as well.

Given that fact, the following are major constraints in national level in securing finance and investment for sustainable development.

1. **Budget constraints:** With regards to national the budget, the national sustainable development plans must link to budgetary processes and to legislative/regulatory structures in order to promote coordination and prioritization. From budget constraints, Tonga has confined priority area for social sector in past decade. But recent budget, the target is shifted to economic sector. However, priority area in government long term plan is narrow when operating with limited fund.
2. **Institutional weakness:** The structure of the executing agency is a priority for the donor. It is needed to be well organized and a more transparent system in place. Individual capacity to provide high skilled staff for counterpart and coordinate the projects is another weakness. Tonga has experienced a lack of consultative and policy advice skills as well as poor management of fund that lead to failure of project completion.
3. **Lack of information flows:** Flows of information between the donor and recipient is very important. It has provided the progress of activities and stock takes of how the finance has been utilized. It is a problem for Tonga in several occasions that cause misunderstanding and limits the opportunity for securing potential finance for the future.

Lack of participatory culture: Community based projects focus on community development. Tonga sometimes experiences less involvement culture from communities due to lack of coordination and cooperation from national level and as a consequence, donor is ultimately withdrawal fund and repeal the project.

4. TRADE, INVESTMENT, CAPACITY BUILDING AND COOPERATION AND THE STATUS OF SIDS VULNERABILITY

4.1 Trade

Tonga like other small island developing states are vulnerable to common characteristics as a small domestic market, remoteness from world markets, openness and vulnerability to terms of trade shocks, low level of economic diversification, and narrow resource base, and scarcity of skilled labour. Tonga is very vulnerable to natural disasters, with cyclone Waka that struck in December 2001 being the most severe in 10 years.

However, trade, investment and capacity building are considered the mainstays for sustainable development in Tonga. The economy of Tonga has traditionally been dominated by the agricultural sector, with manufacturing contributing a relatively small percentage of GDP. Over recent years, fishing industry and the service sector, including tourism, have become more important. With the cost of disadvantages as small economies, Tonga experienced key trade related concerns and needs which should be addressed at national and regional level in order to adjust policies to align with the need. Specifically, trade in Tonga are vulnerable to lack of market access opportunities, lack of trade facilitation infrastructure, constraint supply capacity, decline commodity prices, lack of transportation link and capacity that lead to high freight cost. The taxation system is also a concern that stems from high tariff rate as well as other fees and charges including port and services tax. Market access is a common problem for small island economies. To guarantee the market access, Tonga must meet requirements of the international market in terms of standard, safety as well as supply capacity.

Furthermore, the principal vulnerability concerns that affect Tonga as well as trade were the combination of weak currency and vulnerability to external shocks such as fuel price hikes, and high freight cost have continued to put upward pressures on the imported components of consumer price index.

Despite challenges of internal capacity towards improving trade and investment in Tonga, government as well as private sector is playing a crucial role in diversifying export. Government through the Ministry of Agriculture initiated a broaden variety of agriculture products to be grown by introducing new variety of vanilla species which has high prices

in world market. Private sector now engages in diversifying exports which involve coffee plantation, processing the raw coffee then latter marketing. Other products such as squash pumpkin and kava have been processing into powder instead of exporting as raw materials. These efforts are aimed to diversify export which strengthening Tonga trade capacity and improving international competitiveness.

Tonga, however, need to put considerable effort on improving trade facilitation infrastructure as well as flow of trade information which will provide potential niche market for high value product with low production cost. The current review of taxation system by Government will facilitate trade as well as create conducive investment climate for private sector led growth. Tonga also needs to be more engage on regional mechanism and economic cooperation in place such as Pacific Island Countries Trade Agreement (PICTA) and Pacific Island Countries for Economic Relation (PACER). These mechanisms would provide significant assistance in developing trade capacity and improving sustainable development.

4.2 Investment

Tonga experienced considerable investment (domestic and foreign) in form of grant, loan and from private sector. The bilateral agencies investment through official development assistance were mainly concentrated on strengthen public and economic sector, upgrading social sector such as education and health sector and development regional (outer island) community standard of living. Private sector investment involved on businesses and few public goods.

Nevertheless, investment in Tonga is not free from challenges and there are concerns and needs to be addressed. Foreign as well as domestic investment are facing similar barriers which government and non-state actors should put considerable effort to identify and develop solutions in order to overcome these concerns. The investment opportunities in Tonga are limited due to vulnerability to the following challenges:

- **Tax structure:** The current tax system had levied higher corporate tax for non resident companies than resident companies. Tonga's under economic reform reviews the tax system and proposed single low rate of corporate income tax.
- **High cost of business:** Tonga is considered as a place in the Pacific region with high cost of businesses particularly the public utilities and energy sector

(the electricity, water, communication and fuel) are the most important inputs for business. The generation and distribution of electricity in Tonga is operated by private enterprise and water supply is under statutory board. Fuel supply is limited to a couple of fuel companies where the price is highly vulnerable to changes of world fuel prices. The communication in forms of internet and telephone operators is competition on a level playing field due to provide similar services by two operators.

- **Administrative barriers:** Tonga's key concerns on administrative barriers includes processing business license, issue of work permit for investors, connecting to public utilities and other administration activities that impede the potential investment for sustainable development. The Asian Development Bank in collaboration with FIAS and Ministry of Labour Commerce and Industries is currently financing and implementing Administrative Barriers Project in Tonga. This project is the first in the Pacific, in order to identify barriers and develop appropriate solutions, not only to minimize these barriers but to attract more investment.
- **Land access:** Access and security of land for investment is an issue in Tonga. However, due to lack of security; confidence and certainty in land, resource access and tenure, investment opportunities are definitely constraint in Tonga.

4.3 Capacity Building

Tonga recently implemented adjustment to the trade policies and legislations to align with World Trade Organization (WTO) rules, which led Tonga to be active participation in multilateral trade system. However, capacity building is an urgent need in Tonga as stated in the Seventh Strategic Development Plan (SDP 7, 2001-2003). Sustainable development requires having a well-developed understanding of the impacts of activities and the linkages between society, the economy and the environment. These linkages point to the need to target actions at all level, from the grassroots community through to government.

Institutional capacity building on agriculture, fisheries and tourism sector are vital component for economic developments. Marketing, promotion and information network is needed for tourism sector. Infrastructure for trade facilitation is needs to be strengthen which will improve performance of agriculture and fishing sector. Individual capacity

training in consultative and policy formulation skills is required in the area of trade and environment. This creates more understanding on environmental conservative and sustainable development.

4.4 Cooperation Mechanisms

The regional cooperative mechanisms that having programmes related to sustainable development and vulnerability concerns in Tonga includes the Pacific Island Countries Trade Agreement (PICTA) and the Pacific Agreement for Closer Economic Relation (PACER). Tonga is now ratified the implementation of PICTA and PACER. Tonga has ratified the PICTA in December 2001 aimed for a free trade agreement among 14 Forum Island countries in order to enhance intra-regional trade, strengthening trade capacity and improving international competitiveness through gradual reduction of tariff and non-tariff barriers to trade amongst the Parties.

The PACER which Tonga also ratified in December 2001 is an economic cooperation agreement among all Forum member whereby Australia and New Zealand provide financial and technical assistance to support the FICs' implementation of PICTA and trade liberalization in general, in areas such as trade facilitation and promotion, and other economic and institutional reform.

Tonga is also member of the ACP countries which recently launched a negotiation with the European Union (EU) for Economic Partnership Agreements (EPA). This mechanism provides opportunity for Tonga to expand trading with the EU market in more competitive approach. The EU in this arrangement initiates assistance in wider areas in order to promote sustainable development and eradication poverty in the ACP countries.

5. MILLENIUM DEVELOPMENT GOALS (MDG'S) AND SUSTAINABLE DEVELOPMENT IN SIDS

In September 2000, 189 nations including 147 Heads of State and Government and eleven Pacific Island countries adopted the Millennium Declaration during a special Millennium Summit held during the 55th United Nations General Assembly. The Prime Minister of Tonga, HRH Prince ‘Ulukalala Lavaka Ata, as a signatory to the Declaration reflected a firm commitment from Tonga to this statement.

The Declaration sets out within a single framework the key challenges facing humanity at the threshold of the new millennium, outlining a response to these challenges and establishes concrete measures for judging performance through a set of inter-related commitments, goals and targets on development, governance, peace, security and human rights.

The Declaration represents a global agenda for development that builds on the set of International Development Goals (IDG) agreed upon during the 1990s at various UN-sponsored world summits and global conferences (including the Doha Declaration, Monterrey Consensus, World Summit on Sustainable Development outcomes & agreements).

Consultations were then held by the members of the United Nations Secretariat and representatives of the IMF, OECD and the World Bank in order to harmonize reporting on the development goals in the Millennium Declaration and the International Development Goals. The group discussed respective targets and selected relevant indicators with a view to developing a comprehensive set of indicators for the Millennium Development Goals (MDGs).

The proposed 8 goals, mostly aimed to be achieved by 2015 with 1990 as a baseline year, are:

- Goal 1: Eradicating poverty and hunger
- Goal 2: Achieving universal primary education
- Goal 3: Promoting gender equality and the empowerment of women
- Goal 4: Reducing child mortality

- Goal 5: Improving maternal and child health
- Goal 6: Combating HIV/AIDS, malaria and other diseases
- Goal 7: Ensuring environmental sustainability
- Goal 8: Developing a global partnership for development

The first seven goals are directed at reducing poverty in all its forms – are interconnected and mutually reinforcing - whilst the last goal – global partnership for development - seeks to strengthen the means to achieve the first seven at the global level.

5.1 Poverty Eradication (Eradicate extreme poverty and hunger)

To date no poverty line has been established for Tonga. There is consensus within government that absolute poverty is not an issue in Tonga. No person is found dying of hunger or deprived of basic human needs such as food, shelter, etc. Rather, it is believed that relative poverty exists in various forms. That is, availability of opportunities varied amongst the population. Efforts had been made to measure inequalities in the rural areas of Tonga. Hardaker *et al.* (1988) reported the following measures.

Table 5.1 Inequality in Rural Areas in Tonga (1984/85)

Per adult equivalents	Gini coefficient
Total land area (ha)	0.391
Cultivated land area (ha)	0.435
Female labour (labour hours)	0.697
Male labour (labour hours)	0.534
Total labour (labour hours)	0.494
Farm assets (value)	0.471
Total assets (value)	0.505
Productivity of land	0.592
Productivity of capital	0.449
Productivity of labour	0.487
Subsistence income	0.480
Cash income (value)	0.735
Total income (value)	0.464

Source: Hardaker, et al. (1988)

Petelo (1992) analyzed the same data used by Hardaker *et al.* (1988), revealing similar inequality measures.

Table 5.2 Inequality in Rural Areas in Tonga (1984/85)

Per adult equivalents	Gini coefficient
Income inequality	0.30 – 0.42
Expenditure inequality	0.35 – 0.48
Land access inequality	0.41 – 0.48
Assets inequality	0.48 – 0.57

Source: Petelo (1992)

The Ministry of Agriculture, Forestry and Food (MAFF) is charged with the mandate of planning, promoting, and sustaining the production of food for domestic consumption as well as for exports. In that capacity, MAFF has been in the past and continuing on to the present adopts various strategies to sustain agricultural productivity and efficiency. There were specific input and output subsidies offered in the past, however farmers are mostly responsible for the costs of production while government and the private sector lead the effort in the marketing of agricultural products.

An ADB regional funded study (RETA 6047: The Preparation of National Poverty Reduction Strategies in Pacific DMCs) is currently undertaken in the Kingdom starting with a *Participatory Assessment on Hardship* survey to determine the poverty line for Tonga. Once results are finalized, national poverty reduction strategies will be designed. Certain aspects of poverty can be incorporated into a propose draft National Poverty Policy.

Constraints to relative poverty eradication include i) lack of capacity in most line ministries and civil society organizations; and ii) lack of financial assets and institutional setups.

5.2 Achieving universal primary education

Relatively high investment levels in education have yielded positive results. Gross primary enrolment rates and retention rates to mid-secondary school level are high. Tonga also has very high literacy rate of 98.5% (1996). The challenge is to improve informal education and to address the lack of secondary technical/vocational education particularly for rural Tongans.

As a follow up to the recently completed Review of the Education Sector, the Ministry of Education is currently reviewing the education system with the intention of identifying

key issues and policy options to provide key directions for future development of education in Tonga. These include i) Planning Principles; ii) Universal Basic Education (Forms 1 & 2; Early Childhood Education and Special Education); iii) Improving the Quality of Learning (Language policy; Curriculum; Assessment; Teacher Supply); iv) Skill Development; v) Management and Control of Education; vi) Efficiency and Financial Sustainability; and vii) Use of Information.

Existing national constraints mainly include lack of financial and capacity resources, as well as lack of appropriate institutional setups, especially in the private sector.

5.3 Promoting gender equality and the empowerment of women

Gender equity and literacy rates have been achieved. Ratio of girls to boys are i) 88:100 in primary level; and ii) 96:100 in tertiary level. Nevertheless, opportunities beyond secondary schools remain limited. The overall ratio of literate females to literate males is 1:1. The share of women in the labor force has increased from 18% in 1986 to 35% in 1996. There are currently no women represented in parliament and few, but increasing, women occupy senior public service positions. Women remain severely disadvantaged with regard to access to land.

There is a Women in Development (WID) unit in the Prime Minister's Office responsible for national women affairs. A national gender (GAD) was launched in 2003 recognizing the role of women in national development.

5.4 Reducing child mortality

Child mortality rates have been decreasing and are comparatively low. For children below 5 years old, mortality rate is 14.2% (2000 Vital Statistics). Infant mortality rate is 11.3 per 1000 births and vaccine targeted measles response only on epidemic orient. There is broad immunization coverage with more than 95% of children fully immunized against common infectious diseases.

Reducing child mortality is an integral part of the Ministry of Health current and ongoing activities. The Healthy Island campaign currently conducted by the MOH includes this area. Child immunization against common infectious diseases is routine work.

Constraints include inadequate i) financial support; ii) capacity standards; and iii) institutional framework.

5.5 Improving maternal and child health

The maternal and mortality rate is subject to substantial fluctuations because of small absolute numbers. It varied from 200 in 1995 and 41 in 1999 and 81 in 2000. The maternal mortality rate is 2.1 per 100,000. Maternal mortality remains a concern particularly in rural areas. The proportion of births attended by skilled health personnel is high with 92% in 2000.

Improving maternal and child health is also routine daily tasks perform by the MOH personnel. It is also included in the Healthy Island campaign recently embarked by the MOH.

5.6 Combating HIV/AIDS, malaria and other diseases

There is no data on HIV/AIDS prevalence rates. The level of contraceptive use is low with 33.9% (2000). Tonga is witnessing a changing disease pattern. There are rising levels of non-communicable diseases, especially heart disease, obesity and increasing alcohol abuse.

According to the Ministry of Health, the entire population has direct access to health care services and essential drugs

5.7 Ensuring environmental sustainability

Available data suggest that almost all Tongans have access to safe drinking water and to an improved source of sanitation. The MOH (2001) estimated that 97% of the population has access to safe water supply and that 94.0% of all households have adequate sanitation facilities. Figures, however, may be overstated and the quality of some water and sanitation facilities may be poor.

Limited land resources combined with high urban population movement are placing increasing pressures on the country's natural resources. Waste management needs further

improvement. To that end, government is embarking on relocating the main dumping facilities from the capital to the rural area.

5.8 Developing a global partnership for development

The current national Strategic Development Plan 7 (SDP7) has eleven (11) Strategic Result Areas (SRAs). Presented in Table 5.3, where possible, is an attempt to reflect where these SRAs are related to the MDGs, and also which characteristics of the national vision and what national objectives are being related to the MDGs. It is Tonga's point of view that for global goals such as the MDGs as a result of global consultations, they must be a reflection of national goals. These are the areas where global partnership should be developed (refer Table 5.3).

Table 5.3: Relations between the MDGs and the SDP7 SRAs, National Vision, and Objectives

<i>MDGs</i>	<i>Related vision x-tic(s)</i>	<i>Related objectives</i>	<i>Related SRAs</i>
1. Eradicate extreme poverty and hunger	i) high standard of living; ii) fair distribution of development benefits; iii) individual fulfillment	i) development benefits being distributed equitably; ii) a social safety net, ensuring an adequate standard of living and quality of life for those in needs	i) developing human resources including youths and international sports; ii) improvement of access to government services in rural areas and outer islands
2. Achieve universal primary education	i) individual fulfillment; ii) high standard of living	i) well educated and skilled labor force, and a healthy population; ii) good quality primary, secondary, and tertiary education, especially vocational and technical, with equal opportunity and access for both men and women; that all school age children attend school	i) developing human resources including youth and international sports;
3. Promote gender equality and empower women	i) gender equity	i) good quality primary, secondary, and tertiary education, especially vocational and technical, with equal opportunity and access for both men and women; that all school age	i) employment creation

4. Reduce child mortality	i) high quality of life of the people overall; ii) high standard of living throughout the Kingdom	children attend school; ii) full employment and high incomes for both men and women i) good health for all in a healthy island setting through healthy homes, healthy schools, healthy villages, healthy and safe work places, healthy towns and urban areas, safe and healthy roads and so forth; ii) an efficient, high quality and affordable health care services	i) developing human resources including youths and international sports
5. Improve maternal health	i) high quality of life of the people overall; ii) high standard of living throughout the Kingdom	i) good health for all in a healthy island setting through healthy homes, healthy schools, healthy villages, healthy and safe work places, healthy towns and urban areas, safe and healthy roads and so forth; ii) an efficient, high quality and affordable health care services	i) developing human resources including youths and international sports
6. Combat HIV/AIDS, malaria and other diseases	i) high quality of life of the people overall; ii) high standard of living throughout the Kingdom	i) good health for all in a healthy island setting through healthy homes, healthy schools, healthy villages, healthy and safe work places, healthy towns and urban areas, safe and healthy roads and so forth; ii) an efficient, high quality and affordable health care services	i) developing human resources including youths and international sports
7. Ensure environment sustainability	i) respecting the options of both present and future generations; ii) clean healthy environment and sustainable natural resources	i) prevent or minimize pollution of the environment and integrated planning of the use of resources; ii) the health risk of settlements in low lying areas and	i) sustainable utilization and management of natural resources and the environment; ii) improvement of access to government services in rural areas and

8. Develop a global partnership for development	i) stable economic and financial environment; ii) political stability	squatters at Tukumotonga is solved and eliminated i) sound and encouraging environment for the development and increased involvement of the private sector in economic activities; ii) efficient and well structured government sector, with the qualities of good governance and accountability; iii) build a dynamic and highly competitive economy driven mainly by the private sector and an efficient public sector	outer islands i) improving comparative advantages and competitive positions; ii) facilitating the development of the private sector; iii) rationalizing the services of both government and public enterprises
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It is obvious from the above table that the MDGs, to some extent, are already being integrated into the current planning framework of Tonga. The challenge then is to determine how relevant the targets and the indicators are, and the methods to determine the targets and to calculate the indicators. Also, other goals, targets, and indicators may be included where deemed appropriate for the situation here in Tonga. However, it is proposed that the report to be submitted to the UN should adhere to the already agreed goals, targets and indicators.

6. EMERGING CONCERNS AND SPECIAL NEEDS

Against the review undertaken (Chapters 1-5) in this report, it is noted that Tonga has met to some extent the objectives of the BPOA. In particular, with the national programmes that integrates environmental, natural resource, social, economic and gender considerations consistent with the Rio Declaration and Agenda 21. Further, Tonga's implementations of its national development objectives through its key strategic results areas (SRAs), components of the BPOA were also addressed.

It is equally important to state at outset that a decade has passed since Agenda 21, and BPOA where emerging concerns and special needs of SIDs were highlighted, however global partnerships to address these on the ground level have been largely driven by global agendas (implementing global conventions such as UNFCCC, CBD, Stockholm Convention, Montreal Protocol etc.) rather than 'real' local or national priorities. For example - a decade after the Agenda 21 and BPOA Tonga's coast line continues to erode and inundated due to sever storms related to global climate change and sea level rise. The need for 'Adaptation Strategies has been a key 'concern and special needs' of small islands in the Pacific in the UNCED, WSSD and the BPOA processes. Extending from coastal erosion and inundation to coral bleaching, prolonged droughts (El Nino related), salt water intrusion into fresh water sources, and soil salination are 'special needs' that are 'locked' in the climate change and sea level rise analysis. National efforts and those supported by global instruments such as tree planting, integrated coastal zone planning, monitoring and data collection and developing national strategies despite their good intentions do not slow down the impacts of climate change and sea level rise. Global partnership however, is crucial for the protections of small islands in terms of providing immediate physical support in parallel with the current efforts.

From an economic perspective, the Tongan economy is striving to cope with both internal and external factors affecting its overall performances. Against all odds the economy is performing its uttermost best, and at all times with the help of Tongan living overseas, manages to balance some of its account and still generate some foreign reserves. Economic pressures ultimately have negative impacts on the environment and will continue to do so in the future unless sustainable production is achieved.

Sustainable practices, especially in the primary sector, i.e., agriculture, fishery and forestry, are often counterproductive, e.g., plants and disease control using chemicals are the most cost effective of producing agricultural goods for exports such as squash. However, these practices are not environment friendly and moves have been made to control the uses of these chemicals. These are wise decisions but producers mostly look at the short-term benefits at the expense of long-term environment, and at most time detrimental health, effects.

Economic efficiency (i.e., technical efficiency x allocative efficiency) or inefficiency is also an area of concern. Given the price taking nature of primary producers in Tonga, market share is always beyond their control. The challenge then is to produce this amount with the given technology (technical efficiency) using the cheapest combination of inputs necessary (allocative efficiency). Achieving the highest economic efficiency will ensure using less resources, attaining the required market output, increase costs savings and net returns, resulting in increasing net profits, and impose less pressure on the natural environment.

Evidences from the squash export industry (Petelo, 2002) to Japan suggest that considerable inefficiencies exist in squash export production. On average, a squash export farmer is only 35 percent efficient, meaning that he is 65 percent inefficient in using resources to produce the potential export output. Implications are that farmers are using more inputs (land, labour, pesticides, herbicides, fertilizers, etc) than necessary by being technically and allocatively inefficient. There is therefore a need to look at the sources of these inefficiencies and try and correct them so that fewer pressures are exerted to the environment.

Controlling consumption is always a difficult job to do. This is due to the fact that policies and regulations may be imposed against the will of consumers forcing them to consume less of the goods they want and more of the goods that they may not necessary need. Promoting a more competitive market with minimum government interventions may appear well on paper but discriminating to poorer people, especially if income distribution is skewed towards richer people. The distribution of income in the rural areas of Tonga is not equitable hence people may be forced to utilize natural resources, especially land, trees and ocean resources unwisely and negatively impact the environment in the long run.

Tonga's capacity to combat HIV/AIDS, malaria and other emerging communicable diseases such as SARS is crucial to be strengthened. Continued community education and awareness programmes on STDs should be a priority national action to ensure that these diseases are under control in Tonga. Further, preparedness to combat SARS is critical in the small population of small islands. However, this in return required continued assistance from the global community in term of financial and technical assistance.

Concurrently, Tonga also anticipates that global partnership will be forthcoming for the Pacific Umbrella Initiatives Post WSSD (Annex 2), as follows:

- Capacity Building through Education and Training for the Sustainable Use and Management of Natural Resources and the Environment
- Pacific Islands Energy for Sustainable Development
- Sustainable Land Resources Development
- Pacific Island Adaptation
- Sustainable Tourism Development for the Pacific
- Pacific Islands Governance
- Vulnerability and Disaster Management
- Pacific Islands Health for Sustainable Development
- Information and Communication Technology for Sustainable Development
- Pacific Strategies for Water, Sanitation and Hygiene, and Regional Consultation on Sustainable Water Management
- Mainstreaming Conservation of Biodiversity and associated traditional knowledge
- Oceans
- Planning and Community Development
- Waste Management and
- Chemical Management

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