



FINAL REPORT

THEMATIC ASSESSMENT

The Convention on Biological Diversity

& the Cartagena Protocol on Biosafety

‘To be economically sustainable, development has to be environmentally sustainable’

prepared for

Department of Environment

prepared by

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Contents

Acknowledgements	4
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EXECUTIVE SUMMARY

THE CONVENTION ON BIOLOGICAL DIVERSITY	5
Background Purpose	5
National Implementation of the Convention	5
Implementation of the National Biodiversity Strategy and Action	6
Capacity Constraints	
Areas for Action and Recommendations	7
THE CARTAGENA PROTOCOL ON BIOSAFETY	9
National Implementation	9
Areas for Action and Recommendations	9
Overview of Fijis Biodiversity	10
Fiji's Background	10
Climatic Conditions	10
Socio Economic Status	10
Status of Biodiversity	11
Biodiversity of Ecosystem	14
Trends in Changing Biodiversity	15
Causes of Depletion of Biodiversity	16

1 United Nations Convention on Biological Diversity (or biodiversity)

2 National Implementation record for the CBD

2.1 Fiji background	20
2.2 National Obligation Under the Convention	20
2.3 First national report to the CBD	20
2.4 Second national report to the CBD	21
2.5 A third national report	21
2.6 National Biodiversity Strategic Action Plan	21
2.7 Other policies and programmes related to biological diversity conservation and sustainable use	22
2.8 The NEC and the NCSD	23
2.9 Status OF Implementation of CBD IN Fiji	25
2.10 Protected Area Management	26
2.11 National Activities Under The Convention	31
2.12 Relevant Pacific programmes	43
2.13 International conventions	45
2.14 MDGs and Strategic Development Goals	46

3 Implementation of the National Biodiversity Strategy and Action Plan

3.1 NBSAP committees	49
3.2 Review of the Implementation of the NBSAP Action Plan	50
3.3 Status of high priority and priority projects	52
3.4 Summary of constraints for the priority actions	59

4 Review of Implementation of the CBD

4.1 Focal Point for the CBD	59
4.2 Relevant Articles under the CBD and responses	60
4.3 Related biodiversity initiatives	61
4.4 Legislation	64

5 Capacity assessment and recommendations of the Government of Fiji, implementing agency and partner institutions

5.1 Systemic	
5.1.1 Fiji Government	66
5.2 Institutional	
5.2.1 General Government	69
5.3 Individual	
5.3.1 Department of Environment	77
5.5 Non-Government Organizations	77
5.6 Overall constraints and recommendations	80

6 The Cartagena Protocol on Biosafety

6.1 National Implementation	82
6.2 Areas for Action	83
6.3 Capacity needs / Recommendations for Fiji	84

Appendixes

1. Acronyms
2. Guiding principles of Fiji's NBSAP
3. Environment statement in Fiji's Millennium Development Goal report, 2004
4. Environment statements in recent Strategic Development Plans:
 - a) Sustainable Economic and Empowerment Development Strategy (SEEDS) 2008-2010. "A Better Fiji for All" November 2007 (current Government)
 - b) Strategic Development Plan 2007-2011, November 2006 (previous Government)
 - c) Strategic Development Plan, 2003-2005, November 2002 (previous Government)
5. List of international conventions, treaties and protocols relevant to the environment that Fiji has signed, or has overlooked
6. NBSAP Action and Implementation Framework
 - a) Focus One – community support, awareness, involvement, ownership
 - b) Focus Two – improving our knowledge
 - c) Focus Three – developing protected areas
 - d) Focus Four – species conservation
 - e) Focus Five – control of invasive species
 - f) Focus Six – capacity building and strengthening
7. Relevant Articles of the CBD and responses
8. Marine protection system by 2020
9. Persons interviewed and contacted

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EXECUTIVE SUMMARY

The Convention on Biological Diversity

Background

- i) The Convention on Biological Diversity (CBD) is a 'Rio Convention' resulting from the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil in 1992. Fiji signed the Convention at that time, indicating its commitment to the Convention's objectives. Fiji ratified the CBD on 25 February 1993.

Purpose

- ii) This National Capacity Self-Assessment within the thematic area of Biodiversity seeks to review Fiji's implementation of the CBD. The aim is to identify priority areas for action so that more appropriate actions may be implemented. As part of this project, a stocktaking exercise was conducted in July 2008 that provided a 'baseline situation' of the country's implementation of the Convention. Information for the Stocktake report was gathered from stakeholders, comprising local and regional non-Government Organisations (NGOs), government departments and statutory bodies, community-based organisations, and private companies; also the National Biodiversity Strategy and Action Plan (NBSAP).
- iii) The objectives of the thematic profile are to identify and record the activities that have taken place under the different CBD Articles, appraise the NBSAP, identify capacity constraints (systemic, institutional and individual) and make recommendations on how constraints can be addressed and capacity building enhanced.

National Implementation of the Convention

- iv) Since the entry into force of the Convention, the Conference of the Parties (COP) has held nine meetings and adopted many decisions on a variety of thematic areas and cross-cutting issues related to implementation of the Convention's Articles. In addition to implementing the decisions made by the COP, Parties are obliged to submit national reports and develop National Biodiversity Strategy and Action Plans.
- v) Since ratifying the Convention, Fiji has implemented the following Convention decisions:
 - submission of its first (interim report) and second National Reports to the CBD Secretariat; and
 - completion and distribution of a National Biodiversity Strategy and Action Plan.
- vi) *Fiji's NBSAP, the National Strategy and Action Plan – Fiji Islands – Challenging Fiji's Future in Every Way*, was developed under the guidance of a multi-sectoral National Biodiversity Steering Committee with implementation and funding from the United Nations Development Programme-Global Environment Facility (UNDP-GEF). It was executed by the Fiji Department of Environment and completed and published later in September 2007. Its contents include:
 - an overview of Fiji's biodiversity and its benefits towards sustainable development;
 - the major gaps and challenges affecting the conservation and sustainable use of Fiji's biodiversity;
 - a national strategy and action plan;
 - project profiles and briefs;
 - relevant appendixes; and
 - priority issues identified at the national level.

Implementation of the National Biodiversity Strategy and Action Plan and the CBD commitments

- vii) Fiji's NBSAP identified priority projects and activities. It also made a number of recommendations, identified six focal points and 104 objectives relating to the goals outlined in the identified national strategy. The focal points are
- (a) Community support – awareness, involvement and ownership,
 - (b) Improving our knowledge,
 - (c) Developing protected areas,
 - (d) Species conservation,
 - (e) Management of invasive species, and
 - (f) Capacity building and strengthening.
- viii) Fulfilling the NBSAP has fallen well short of expectations. Although the Department of Environment led the preparation of the NBSAP, consistent with its obligations as CBD focal point, it has been unable to fully implement most of the activities because of resource and capacity constraints. Implementation of many NBSAP actions has fallen instead on the shoulders of NGOs and academic institutions in Fiji.
- ix) Meeting obligations of the CBD has been better followed in Fiji. Again, much of it is performed by the NGOs because of constraints in the Department of Environment which however, has assisted by providing an enabling environment when it is able. The departments of Forestry and Fisheries have made substantial commitments. The Quarantine section of the Department of Agriculture, the National Trust, and the Department of Culture and Heritage has made important conservation contributions to Fiji also.

Capacity Constraints

Systemic Capacity

- x) Little has changed in the fifteen years since Fiji's National Environment Strategy¹ was published. The environmental issues of major significance it identified in its summary (p vi) are as valid today as they were then:
- **'the lack of capacity in government to manage natural resources on a sustainable basis because of inadequate policies, legislation, forward planning and administration;**
 - pollution is effectively uncontrolled and emerging as a serious issue;
 - municipal waste management is an obvious national dilemma;
 - serious soil degradation is becoming prevalent in the marginal hill lands which are Fiji's agricultural resource base of the future;
 - deficiencies in national planning are being compounded by significant urban drift resulting in widespread informal development in peri-urban areas which host many environmental and social problems;
 - heritage and biodiversity values are inadequately appreciated while losses are increasing through ill-directed development activities and lack of management'.
- xi) **Legislation** supporting the CBD and general environment activities is inadequate because it mostly is out-dated. Enforcement of existing legislation is another constraint.

¹ Watling, D. and Chape, S. 1993. *The National Environment Strategy Fiji*. Suva: Government of Fiji and IUCN – the World Conservation Union.

Institutional Level

- xii) The capacity gaps at the Department of Environment – because of resource limitations – to effectively coordinate conservation and environment activities in Fiji is one significant cause of the scattered response to those issues in Fiji.
- xiii) Weak government structure has led to imprecise linkages between government bodies, no clear mandates in place, weak inter-government communication, vague or too-broad mission and vision statements, and competition between stakeholders – all combining to oppose a uniform approach to biodiversity conservation, and **weaken Fiji's international image** on the environment stage.
- xiv) Capacity in the government focal point (Department of Environment) for the CBD **is clearly suboptimal**: the capacity to utilise funding, facilitate and deliver needs to improve. The Department is not capable to perform its mandate satisfactorily, and that Fiji's environment and biodiversity have not deteriorated further is due to the support of a variety of local and regional Non-Government Organisations (NGOs), donors, sections within the University of the South Pacific, other government departments (forestry and fisheries, quarantine) and the National Trust.
- xv) The environment actions spelt out in the National Biodiversity Strategy and Action Plan (NBSAP) are **incompletely fulfilled and conservation initiatives in Fiji are weakening**. This is largely because of the Department of Environment's incapacity to prioritize its activities, to strategize, and to coordinate national effort. Lack of a comprehensive national action plan with identified outcomes, indicators, specific objectives, and timelines is a major impediment to biodiversity conservation in Fiji. To be fair however, the Department has been asked to carry out many activities: it simply does not have the financial, technical, management and coordination skills to perform them.
- xvi) General national government disinterest (until recently) in the well-being of Fiji's biodiversity and environment has a trickle down effect to stakeholders, including government departments and statutory bodies, because it is evidenced by insufficient resource allocation, capacity enhancement and drive.

Individual Capacity

- xvii) What can we see when we peruse our towns and rural areas? – rubbish, polluted coastal areas and streams, destroyed mangrove and native forest stands, degraded hills, alga-covered corals, and foreign plants and animals. With this in evident, the question of capacity of the Department of Environment arises in terms of the following:
 1. What is the financial capacity of the Department of Environment in the last 16 years and how has funds been allocated and used.

Areas for Action and Recommendation

Action

Institutional Capacity

- xviii) The need to mainstream the conservation and sustainable use of biological resources across all sectors of the national economy, the society and the policy-making framework is a complex challenge at the heart of the Convention on Biological Diversity.

Individual Capacity

xix) Responsibility for the 'biodiversity crisis' in Fiji is (should be) equally shared between government, non-government organisations, academic institutions, individuals, private organisations and statutory bodies.

Recommendation

xx) This report makes many identified actions and 22 recommendations. They can be summarized into the following:

Systemic Capacity

- Harmonizing in government for **conventions and treaties**;
- Effective legislation and its implementation
- Establishment of a Code of Practice that binds all stakeholders.
- Assessment of the mandates of environment-related departments, their legislation, and their capabilities;

Institutional Capacity

- The Department of Environment needs to **generate a significant investment in increasing individual capacity** (quantity and quality), leadership, operations, management, responsiveness, and strategic thinking, as well as additional organisational structures if it is to meet its CBD requirements and oversee the conservation of biodiversity in Fiji;
- Need for very strong coordination in government departments and **mainstreaming of reporting on international conventions**
- Need for a **strong monitoring system** for activities;
- Ensure that **Fiji's conservation needs** are addressed – not just those of the region or the world;

Individual Capacity

- Undertake a **thorough appraisal of the capability, with the aim of improving, the Department of Environment** in overseeing Fiji's environment and conservation of biodiversity needs;
- The Department of Environment needs to cater more strategically, communicate more, operate as a team, and lead in conservation programmes in Fiji;
- Need for a very capable **information database and reporting system**;
- Public awareness and good communication between all stakeholders;

xxi) It is time for government, non-government, academic and other conservation partners to work together in an absence of competition and animosity to achieve what, after all, they say they are working towards: the conservation of Fiji's unique and valued biodiversity.

The Cartagena Protocol on Biosafety

- xxii) The Cartagena Protocol on Biosafety was adopted as a supplementary agreement by the Conference of the Parties to the CBD on 29 January 2000. Fiji signed the Cartagena Protocol on 2 May 2001 and ratified it on 5 June 2001, and became a full member on 11 September 2003. The Department of Environment is the focal point. A MOU was finalised with UNEP (United Nations Environment Programme) in February 2008.
- xxiii) The Protocol seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology by establishing an advance informed agreement (AIA) procedure. This procedure ensures that countries are provided with the information necessary to make informed decisions before agreeing to the import of living modified organisms. The Protocol contains reference to a precautionary approach and also establishes a Biosafety Clearing-House (BCH) to facilitate the exchange of information on living modified organisms and to assist countries in the implementation of the Protocol.
- xxiv) The Meeting of the Parties to the Protocol (COP-MOP) adopted a reporting format (available on their website) and requested Parties to submit reports every four years, but in the initial four-year period to submit an interim report two years after entry into force of the Protocol. The first regular national report was due on 11 September 2007 and the first interim report was due on 11 September 2005.

National Implementation

- xxv) With funding from the UNDP-GEF, Fiji conducted its first national Biosafety Clearing House Taskforce workshop in May 2008. A National Biosafety Sub-committee was established, comprising the ministries of Justice, Agriculture (Quarantine) and Health, the Customs Authority (border control), and the Consumer Council of Fiji.
- xxvi) A second workshop is about to be conducted (September 2008). The purpose of this workshop is to train national authorised users on how to enter and retrieve information on living modified organisms (LMO) and genetically modified organisms (GMO) on/to the international biosafety website that is hosted by UNEP (United Nations Environment Programme) in Geneva. The participants at the workshop will include the National Biosafety Task-force and remaining stakeholders.
- xxvii) In April 2008, a taskforce at the Office of the Attorney-General examined existing legislation relevant to biosafety, and in October 2008 the Fiji Government approved the Bio-security Promulgation.
- xxviii) In addition to the lack of legal provision, an identified problem is that different reservoirs of information on biosecurity and biosafety exist in Fiji: each border control and/or relevant resource organisation has its own data and so far it has not been shared.

Areas of Action and Recommendations

- Hosting of the second national workshop (above).
- Production of awareness-raising material.
- Purchasing equipment to facilitate the BCH project
- BCH Taskforce to conduct a third workshop to aimed at reviewing the project.
- Production of a National Biosafety Framework.

Overview of Fiji's Biodiversity

Fiji's Background

The Fiji islands are situated in the southwest Pacific within the tropic of Capricorn. Its approximate extent is between longitudes 174° East and 178° West and latitudes 12° South and 22° south. This entitles to Fiji 65,000 km² of territory of which 18,000 km² is land area. There are approximately 330 islands within the Fiji archipelago of which 97 are uninhabited. The larger two islands Viti Levu and (10,544 km²) Vanua Levu (5,535 km²) constitute 87% of Fiji's total land area. The major islands are mainly of volcanic origin while the remainder constitute of coral and limestone strata. The highest altitude is meters which can be found on Mt Tomaniivi in Viti Levu.

Climatic Conditions

The Fiji islands lie within the tropic of Capricorn thus enjoy a tropical maritime climate. The archipelago has a vast range of islands that experience 1323 slightly differing climatic conditions. The larger volcanic islands are generally affected by the south east trade winds which coupled with the orographic effect renders the major volcanic islands into a leeward and a windward side (eg the instigating effect of the Medrausucu range in dividing the leeward and the windward regions in Viti Levu). The smaller islands generally have the characteristics of the respective zone it neighbors (eg the Yasawa islands that have the weather pattern characteristics of the leeward region thus as a result was one of the most severely affected island groups during the 1997/1998 drought). Suva, a windward region experiences an average of 291.3 mm of rainfall where as Nadi a leeward region experiences an average of 210.3 mm of rainfall. Months from May to October experience cooler temperatures averaging 22°Celsius while months from November to April experience average temperatures of 27°Celsius.

Socio Economic Status

Fiji has a total population of around 837,217 after the census in 2007. Of this total 475,379 are Fijians; 313,798 are Indians and 47,734 are classed as others. Fiji is party to a number of international environmental agreements including the United Nations Convention on Biodiversity and the Kyoto Protocol.

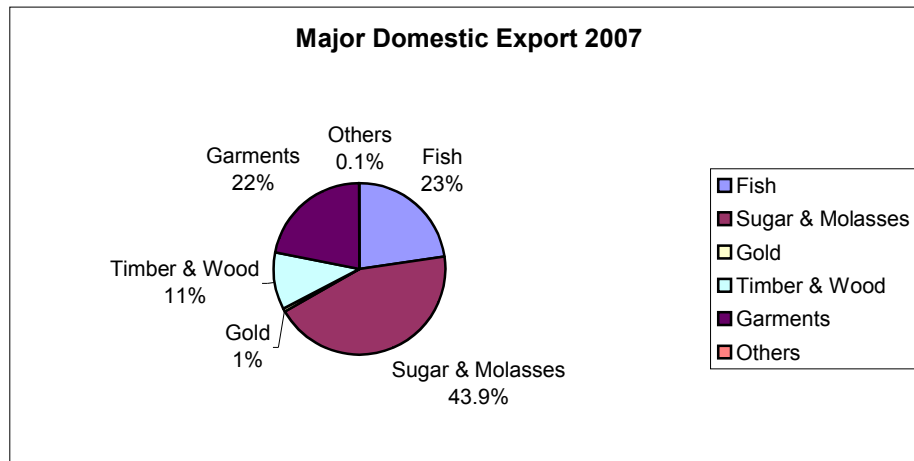
Fiji is a "high island" setting, consisting of mainly steep, volcanic-origin uplands. The uplands slope steeply down to rolling flatland areas suitable for agricultural and other activities, and ultimately to coastal areas defined by sand beaches and coral reefs. Viti Levu, the largest island is home to 75% of the population. It is the political and economic center of the country, containing the capital (Suva), the tourism center (Nadi), and much of the land used for sugarcane farming in the country.

While gross national income per capita of US\$1,820 exceeds the average of that for lower-middle income countries (US\$1,130), 25.5% of Fiji's population lives below the poverty line (World Bank, 2002). Fiji is a small open economy dependent primarily on tourism and sugar production.

Real economic growth averaged 2.4 % between 2007 and 2008, although it only grew by 1.2% in 2008 because of Tropical flooding and the current world recession, highlighting Fiji's economic sensitivity to natural disasters. Fiji essentially pursued inward looking import-substitution policies until the mid 2002 when it made a radical shift towards an export oriented growth strategy. The structure of the Fijian economy however has not changed significantly despite efforts by the government over the past decade and a half. Fiji's relatively undiversified economy also makes it vulnerable to internal (natural disasters, political instability) as well as external (fluctuating world market prices) shocks.

Compared with 2006, the year 2007 saw a decline of 6.6%. The GDP is partitioned among services (18%), industry (15%) and agriculture (14%).

The major domestic exports for the year 2007 were fish, sugar & molasses, gold, timber and wood garments and others (refer to figure below). For timber there was a total of 20742sq.m of wood was produce for export in 2007 (FIBS, 2008) where 78,221sq.m were Native species, 331,701 exotic species and the remaining 48,997 was mahogany.



Source: FIBS, 2008

On the record of natural resource management, the Department of Environment issues CITES permit for items that are registered to be endangered in Fiji. Working on the amount of quota set for Tabua (whales tooth) in 2008 which was 300, 100% of this quota was used. However in 2009 this quota was reduced to 250 due to conservation efforts till now about 68.4% of this quota has been used.

Status of Biodiversity In Fiji

Phytogeography and Floral Inventory

Origin of Fijian Flora

The vascular flora of Fiji is regarded as an extension of the Indo Melanesian floristic province with about 90% of all seed plant genera found in Fiji being present in New Guinea (Balgooy 1971; Ash 1992). However, affinities do exist with Australia, Hawaii, New Caledonia, New Zealand and French Polynesia (Fuller 1997)

The total number of vascular plants known from Fiji is approximately 2600 of which approximately 1600 are native and 1000 are introduced. The current best estimates is that the Fijian flora consists of 310 pteridophytes (fern and fern allies) from Brownlie 1997) and at least 2225 seed plants (Watkins 1995). Based on Smith's Flora Vitiensis Nova (1979-1991), the endemism of Fiji's seed plants is estimated to be 63%, 812 of 1291 native species (Watkins 1995). Smith (1979-1991) recorded 931 introduced species but this is an underestimated based solely on herbarium specimen. The correct figure is likely to be well over 1000 introduced species.

There are single endemic family, Degeneriaceae, and 11 of the approximately 450-470 genera are endemic. These are:

Degeneria (Degeneriaceae), *Alsmithia* (Arecaceae), *Goniocladus* (Arecaceae), *Neovetchia* (Arecaceae), *Gillespeia* (Rubiaceae), *Hedstromia* (Rubiaceae), *Readea* (Rubiaceae), *Squamellaria* (Rubiaceae), *Sukunia* (Rubiaceae), *Amoraria* (Simaroubaceae).

As to be expected in an isolated island flora genetic radiation and endemism in some group is extreme. For instance the genus *Phychotria* (Family Rubiaceae) is represented by 76 species of which 72 are endemic.

Palm is the best studied flora in Fiji and the group documents very clearly the presence of highly restricted ranges, yet recent work shows how poorly we understand even this well studied group. Watling and Carpe (1992) reported that Fiji has 27 palms of which 26 are endemic and 12 of these have restricted ranges. Fuller (1997) after a year of field work has revised the palm flora to consist of 32 species in 15 genera of which 14 genera and 27 species are considered indigenous, and of these, all 27 species and one genus are endemic to Fiji.

Although Fiji's flora is well researched in comparison with those of other South Pacific archipelagos, there remain many localities that have never or scarcely been collected. New plant species are being regularly discovered even though current floral research is minimal. On the basis of the number species known by only a single collection it seems probable that there could be up to 200 species that remains undocumented.

Terrestrial and Freshwater Invertebrates.

Fiji's invertebrates fauna has received little attention and many groups have been studied at all. Literature on the other group is scanty and well scattered in the scientific literature. The following are some readily available data:

Insects

Table 1 A Summary of the approximate number of species of pterygote insects from Fiji.

	Insect Order	Number of Species
1	Ephemeroptera	2spp
2	Odonata	30-40spp
3-8	Othopteroid orders (Blattodea, Isoptera, Mantodea, Demaptera, Orthoptera, Phasmatodea)	60-100spp of which at least a third are Orthoptera.
9-12	Hemipteroid orders (Psocoptera, Phthiraptera, Hemiptera, Thysanoptera)	350-400 spp., probably over 300 spp of Hemiptera.
13	Neuroptera	10+spp
14	Coleoptera	?1000 spp. Including 112 Cerambycidae
15	Strepsiptera	2spp known
16	Siphonaptera	?10+spp
17	Diptera, Most group unworked and grossly under collected	300+spp
18	Trichoptera	20-30spp
19	Lepidoptera. 400spp. Of Macrolepidoptera probably at least 600spp. Of Microlepidoptera.	1000+spp.
20	Hymenoptera	250+spp.

Source: DOE 1997

Birds

Birds are Fiji's most conspicuous wild life with:

- 55 terrestrial feeding species of which 24 are endemic.
- There are 7 endemic genera *Prosopeia* (the Tongan population is introduced), *Phygis*, *Chrysoenas*, *Trichocichla*, *Lamprolia*, *Vitia*, *Xanthotis*, with radiation of three species in *Chrysoenas* and two in *Prosopeia* with marked subspecific variation in *Trichocichla*, *Lamprolia* and *Vitia*.

- 1 inland migrant
- 16 coastal migrants (waders of annual or very regular occurrence)
- 15 confirmed breeding seabird (a similar number are regularly observed in Fiji waters but there is no record of breeding).
- 11 introduced species are naturalised.

There is a total of 27 birds species are endemic in Fiji where a 26 land birds and one sea bird.

Mammals

Fiji's only indigenous mammals are bats of which there are 6 known species, four of which are megachiroterans and two microchiropterans. One of the former, the Fiji Flying Fox *Pteralopex acrodonta* is endemic. Feral populations of domestic species excluded, there are five other introduced species now naturalised (four rodents and the Indian mongoose *Herpestes auropunctus*)

Reptiles

Fiji's wholly terrestrial reptile fauna consist of:

- 3 snakes (1 endemic genus)
- 2 iguanas (1 endemic species)
- 10 geckos (2 endemic species)
- 12 skinks (5 endemic species)

Of the total 27 reptile species, nine are endemic (33%). The single endemic genus in the elapid snake *Ogmodon*. The two species of iguana *Brachylophus spp* are of special interest. Three of the skinks have been described within the last decade an indication that the reptile fauna is as yet incompletely known.

Amphibia

Two indigenous amphibia, both endemic frogs from the genus *Platymantis* occur in Fiji. One of the introduced species the giant toad *Bufo marinus* is naturalised widely.

Current status of Knowledge of marine biodiversity and ecosystem.

Marine flora and fauna are moderately well-known because of the history of active marine research at the University of The South Pacific and the Fisheries Division. There are about 1,200 different species of fish belonging to about 162 different families: about 200 corals, and about 1,100 different molluscs (snails, bivalves etc) have been identified, and many thousands of other invertebrates 9 sponges, worms, crustaceans, starfish, sea urchins and etc) have been described. With the identification of the new collection, the number of fish is expected to reach 1,500.

Fiji's marine reptile fauna includes three species of sea snake which breeds and two turtles which nests, the green turtle *Chelonia mydas* and the Hawksbill Turtle *Eretmochelys imbricate*. In addition, the Loggerhead turtle *Caretta caretta* is uncommon visitor while the Ridelys Turtle *Lepidochelys olivacea* and the Leatherback Turtle *Dermochelys coriacea* are rare to occasional visitors.

The number of species is somewhat lower in Fiji than in the west (e.g. The Great Barrier Reef). Reflecting Fiji's geographical isolation, and the general trend of lowered diversity eastward across the Pacific. A relatively large number of new species have been described in Fiji, many of which have yet to be found outside the group. However this generally reflects more the poor state of knowledge of the region rather the high degree of endemism in the group.

Biodiversity of Ecosystem

Ecosystem is defined as a community that is made of biotic (non-living) and biotic factors (living) interacting as a community in any environment.

The major components of Fiji's natural ecosystems are:

- Open sea
- Coral reefs, lagoons
- Beaches
- Mangrove forests
- Estuaries
- Tropical moist forests
- Lowland Rainforest
- Upland Rainforest
- Cloud Forest
- Talasiga Vegetations
- Smaller Island Vegetations
- Dry Forest
- FreshwaterWetlands

The emphasis is on major natural ecosystems that are or may be threatened by over harvesting, pollution, or conversion to alternative uses.

Agroecosystems- includes the different agricultural ecosystems.

Major component of agroecosystems in Fiji are:

- Extensive shifting agricultural and agroforestry systems
- Semi permanent intercropping system
- Intensive permanent cropping systems
- Perennial plantations agriculture
- Intensive livestock systems and grazing systems
- House yard and urban gardens
- Hydroponic systems
- Plantations forestry/silviculture
- Aquaculture

Causes of Depletion of Biodiversity

Threats to Terrestrial protected areas

Pressures and threats on protected areas are mainly related to population growth and the development of services required by the population and economic development such as agriculture. Several key conservation issues and problems become apparent in terms of ecosystem and biodiversity degradation such as:

- increased soil degradation, which is indicated by the increase in commercial agriculture and the increase in use of fertilizer and pesticide;
- increased pests, weeds and plant diseases;
- loss of native forest and general deforestation;
- loss of habitat, biodiversity and wildlife;
- problems of increasing waste quantities requiring management.

The state of protected areas, however, is difficult to determine due to lack of reliable information, adhoc research, lack of appropriate national indicators developed for conservation, inconsistent policies and data collection methods differs, which make it difficult to establish reliable biodiversity use trends.

Threats to Marine & Coastal Protected Areas

Pressures and threats on coastal and marine protected areas include natural phenomena and human activities.

Coastal area and wetlands reclamation have caused loss of mangrove areas and littoral forest, especially around heavily industrialized areas, on the main towns and cities in Fiji. A further allocation of coastal foreshore areas for residential and commercial purposes in some parts of the country has led to the destruction of the protective coastal tree belt and an increase in the damage caused by seawater spray.

Biodiversity and habitat loss in protected areas are caused by quarrying coral and removing sand from beaches for construction, and is increasing at an alarming rate. Environmental degradation with offshore dredging of sand is yet to be researched.

Coastal pollution from land-based activities and waste is becoming a major threat, for example, siltation from reclamation, solid waste dump sites, potential eutrophication and groundwater seepage into the lagoon or coastal waters.

Although marine reserves have been established as well as a major environmental management plan (FLMMA), there is a lack of commitment for implementation due to lack of resources, lack of skilled manpower and unclear institutional arrangement.

From the few studies that have been concentrated in Fiji, coastal fisheries habitats such as seawater quality, mangroves, and seagrass show signs of degradation as a result of development.

The Convention on Biological Diversity

1 United Nations Convention on Biological Diversity (or Biodiversity)

1. The objectives of the Convention on Biological Diversity (Article 1) are the conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

The principle of the Convention of Biological Diversity says that States have, in accordance with the charter of the United Nations and the principles of international law, the

- Sovereignty right to exploit their own resources pursuant to their own environmental policies
- Responsible to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or areas beyond the limits of national jurisdiction.

2. The overarching aim of the Convention on Biological Diversity (CBD) is the conservation and sustainable use of life's biological resources, fair and equitable sharing of the benefits arising from the use of and access to global genetic resources, and appropriate transfer of relevant technologies.

3. There are 42 Articles and two annexes in the CBD. The guiding objectives are translated into **binding commitments and obligations on Parties** signatory to it, and are articulated in detail under the provisions contained in Articles 6 to 22. Through the work of the Conference of the Parties (COP) the programme of commitment is spread over the five biodiversity areas of the sea and coasts, agriculture, forests, inland waters, and dry and sub-humid lands.

4. Some important considerations relevant to the CBD are:

- **States are responsible** for the conservation of their biological diversity and the sustainable use of their biological resources.
- There is a general lack of information and knowledge regarding biological diversity, world-wide. Consequently, it is necessary to develop scientific, technical and institutional capacities to provide the basic understanding upon which to plan and implement appropriate measures with a view to maintaining biological diversity.
- Capacities for the assessment, study and systematic observation and evaluation of biodiversity need to be reinforced at national and international levels.
- Effective national action and international cooperation are required for the *in situ* protection of ecosystems, for the *ex situ* conservation of biological and genetic resources and for the enhancement of ecosystem functions.
- Finally, the participation and support of local communities are elements **essential** to the success of such an approach.

5. The **obligations** of the parties to the Convention on Biological Diversity include the following:
- a) cooperation between parties to the Convention;
 - b) developing national strategies, plans or programmes for the conservation and sustainable use of biological diversity and adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Parties concerned,
 - c) integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies
 - d) identify components of biological diversity important for its conservation and sustainable use, monitor them, and identify any activities that may adversely affect those components;
 - e) develop a system of protected areas, together with guidelines for their development and management;
 - f) promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;
 - g) promote sustainable sound developments;
 - h) rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies;
 - i) establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology;
 - j) prevent the introduction of, control to eradicate, those alien species which threaten ecosystems, habitats or species;
 - k) respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities, embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity;
 - l) develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations; and
 - m) cooperate in providing financial and other support for in-site conservation.

6. Related Conventions of Contracting Parties

- Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). Some of the obligations under CITES are to monitor and when necessary curtail trade in those species of wild flora and fauna that are in immediate or eventual danger of extinction due to a variety of factors, including their international trade. CITES appendixes list fauna and flora present in Fiji – some tree species, certain shells, coral, certain terrestrial fauna. CITES also encourages the promotion of international and national vernacular and scientific nomenclature of fauna and flora.
- Convention on Wetlands of International Importance especially as Waterfowl Habitat, initiated in Ramsar, Iran, 1971 (now known as the Ramsar Convention). RAMSAR calls upon its Parties to recognise the interdependence of humans and their environment, and to consider the importance of the many ecological functions of wetlands, including flood control, nutrient cycling, and habitat for migratory wildlife and commercially important fish. Wetland losses are irreparable because of their economic as well as scientific and recreational values. Parties are instructed to develop national policies to decrease wetland losses and to recognize that migratory waterfowl are important international resources because of their seasonal movements. The overall intent of Ramsar is to enhance national policies and international coordination for the conservation of both wetlands and waterfowl.

- Protocol on Biosafety initiated in Cartagena, Colombia, 2000.
- Convention on the Conservation of Migratory species of Wild Animals (whales and dolphins, e.g). This Convention came into force in 1983 and aims to conserve terrestrial, marine and avian species throughout their migratory ranges. Countries that are parties to the Convention collaborate to conserve these migratory species and their habitats by (a) providing strict protection for endangered migratory species (those listed in Appendix I to the Convention); (b) establishing agreements to conserve and manage key migratory species (those listed in Appendix II); and (c) engaging in cooperative research activities.
- Convention for the Protection of Natural Resources and Environment of the South Pacific Region and Related Protocols (1986). The parties to this Convention aim to prevent, reduce and control pollution from all sources and enable legislation to control pollution in their national waters. The Convention also addresses dumping of toxic and hazardous waste and mining and coastal erosion. Parties to the Convention are obliged to establish protected areas for wild flora and fauna and to carry out environmental impact assessments.
- Convention for the Protection of the World Cultural and Natural Heritage (World Heritage, 1972). The Convention aims to encourage the identification, protection and preservation of Earth's cultural and natural heritage. It recognises that culture is strongly related to the natural environment in which it develops.
- Washington Declaration on Protection of the Marine Environment from Land-based Activities (1995). This Declaration addresses the interlinkages between the freshwater and marine environments and recognises that the major threats to the health, productivity and biodiversity of the marine environment result from human activities in coastal areas and further inland. The Declaration identifies a global plan of action.
- Stockholm Convention on Persistent Organic Pollutants (2004). The Convention aims to protect human health and the environment from the effects of persistent organic pollutants (POPs) with a range of control measures to reduce and, where feasible, eliminate POPs releases, including emissions of unintentionally produced POPs such as dioxins. The Convention also aims to ensure the sound management of stockpiles and wastes that contain POPs. There are currently twelve POPs listed in Annexes to the Convention. These are aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene, polychlorinated biphenyls, DDT, dioxins and furans. The Convention recognises that there are other chemicals that could pose similar hazardous threats to human health and the environment, therefore other chemicals may be added in the future. The Convention urges parties to produce National Implementation Plans to guide national responses.
- Millennium Development Goals (MDG). Several years ago, Governments around the world agreed on a set of common goals for developing countries, known as the Millennium Development Goals. These Goals are time-bound (have a set beginning and end date – 2015) and have established outcomes and achievements in order to tackle extreme poverty, hunger, disease, gender equality, education and environmental sustainability. As one of the signatories of the MDGs, Fiji has accepted all of its goals. The Goal for environmental sustainability (Goal 7) has two main targets (Target 9: integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources; Target 10: halve by 2015 the proportion of people without sustainable access to safe drinking water). Of particular interest in Target 9 is the requirement (among other things) for a higher percentage of land to be covered by forest and a greater area of protected areas. Target 10 also identifies improved sanitation as a requirement. Fiji's performance on the MDG's has been variable: on the one side its forest area has decreased (44.6% total land area) and less people have access to improved water sources and sanitation, while its national protected areas has increased (1.1% total land area).

2 National implementation of the Convention on Biological Diversity (CBD)

2.1 Fiji Background

7. Fiji signed the UN CBD on 5 June 1992 and ratified it on 25 February 1993². Upon those actions, a train of events was put in place.

8. Article 6 of the CBD (General measures for conservation and sustainable use) states that contracting parties shall

(a) develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect the measures set out in the CBD, and

(b) integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

9. This Article is mandatory and creates an obligation for national biodiversity planning. Parties are obliged to submit national reports to the Secretariat of the Conference of the Parties to the CBD (SCOP) every four years. As well as a four-yearly reporting obligation to the Conference of the Parties (COP), the two main plans or programmes committed under Article 6 are national biodiversity strategy and action plans (NBSAPs) and National Capacity Self-Assessment Programmes (NCSA).

2.2 National Obligations under the Convention

10. Preparation of a National Biodiversity Strategic Action Plan (under Article 6) and undertaking a National Capacity Self Assessment program are two of the primary obligations for Fiji under the CBD.

- The first was completed in October 1999 but not endorsed by Cabinet until 2003; it was updated in 2006.
- The second obligation, the NCSAP, is underway.

2.3 First national report to the CBD – 31 December 1997 (7th January 1998)

11. The full text of this report is on the CBD website at: Full text at www.cbd.int/reports/search/Fiji

12. This report is a presentation of Fiji's situation: climate, geography, vegetation ('there remain many localities that have never or scarcely been collected; current floral research is minimal; there could be up to 200 species that remain undocumented; the floristic diversity of Fijian forests has not been adequately documented'), terrestrial ('Fiji's invertebrate fauna has received little attention and many groups have not been studied at all'; birds, reptiles, amphibians, mammals relatively well-known: high level of endemism), freshwater and marine fauna ('Fiji's marine flora and fauna are moderately well known') are described. In a section on legislation, the ineffective contribution of dated legislation and the hope of the Sustainable Development Bill are mentioned. A table of legislation, its conservation provision and authority is presented; the situation of protected areas and reserves is described; and the threat status of certain species is described and tabled.

² 'Signing' is the first step after negotiation on a legally-binding agreement. 'Ratification' is the next move after signing and it indicates that countries have accessed their national interests and capacity to implement the agreement. Once enough countries have ratified, they are bound to the convention and it 'enters into force'. 'Signing' in the absence of ratifying means that the country is not legally bound. 'Accession' is similar to ratification.

2.4 Second national report to the CBD – 15 May 2001

13. The full text of this report is on the CBD website at: Full text at www.cbd.int/reports/search/Fiji

14. This report was prepared following a format provided (presumably) by the SCOP. The format of the questionnaire follows the Articles of the CBD. It also includes Fiji's response to the Cartagena Protocol on Biosafety. The format asks various questions – e.g. how important is freshwater and marine biodiversity research in your country [answer = 'high'] but what are your resources to achieve that [answer = 'limited']. To many questions the answer is the same: 'high' importance but limited resources. Interestingly, the report says that Fiji has completely assessed its taxonomic needs, has a national taxonomic plan and is committed to taxonomic training and institutions – in hindsight, quite erroneous. The responses to questions on invasive species are more guarded. Attention to traditional knowledge and culture is classed as 'high' – but ground truthing does not support that statement.

2.5 A third national report

15. was not made³ although Carter (2007: Table 1) records that a third report was submitted. The Department of Environment has no record of it, nor does the CBD website.

16. The **fourth national report** is due on 30 March 2009. The SCOP expects that fourth national reports will provide essential information to assess progress towards the 2010 Biodiversity Target. This Target was committed to by the Parties to the Convention (at COP8?) in April 2002: Parties committed themselves to achieve by 2010 a significant reduction in the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and a benefit to all life on Earth. This target was later endorsed by the World Summit on Sustainable Development and the United Nations General Assembly and was incorporated as a new target under the Millennium Development Goals⁴.

2.6 National Biodiversity Strategic Action Plan

17. The NBSAPs contain strategies developed by countries which are parties to the CBD but the driving force behind them is national ownership and initiative. A **NBSAP** is a mechanism of the CBD and is developed by individual countries, through extensive consultation, to show the key goals and actions the nation (country) feels is necessary to safeguard its biological diversity. It is **a vital tool to direct management processes and identify the key priority conservation issues** be addressed in each nation's organisations.

18. Funding for Fiji's NBSAP development was made available through the Global Environment Facility of the United Nations Development Programme (UNDP). It was completed in October 1999⁵ (Carter, 2007) but not endorsed by the Fiji Cabinet until 2003; it was updated in 2006.

19. The goal of the Fiji NBSAP is '*To conserve and sustainable use Fiji's terrestrial, freshwater and marine biodiversity, and to maintain the ecological processes and systems which are the foundation of national and local development*'. Nineteen guiding principles are identified.⁶ (Appendix Two)

³ www.cbd.int/reports/search - accessed September 2008

⁴ See: www.cbd.int – accessed September 2008

⁵ Carter, E. (2007). *National biodiversity strategies and action plans. Pacific regional review*.

Commonwealth Secretariat and South Pacific Regional Environment Programme (SPREP), October 2007.

⁶ Ministry of Tourism & Environment. (2007) *National biodiversity strategy and action plan – Fiji Islands – Challenging Fiji's future in every way*. Pp 23-24.

20. **Themes** addressed in Fiji's NBSAP⁷ are:

1. Community – empowerment, awareness, involvement, ownership and benefits
2. Traditional culture and practices; indigenous property rights
3. Improving knowledge, research, education, public awareness
4. Developing and managing protected areas, habitats
5. Species conservation – terrestrial, coastal and marine, and agro-biodiversity
6. Management of invasive species and genetically modified organisms
7. Capacity building and training; governance
8. Sustainable economic development, sustainable use of resources
9. Financial resources, mechanisms

21. These themes closely match the specific thematic areas and cross-cutting issues promoted by the CBD: **Thematic areas** (agricultural biodiversity, island biodiversity, marine and coastal biodiversity, forest biodiversity); and **Cross-cutting issues** (invasive alien species, protected areas, public education and awareness, sustainable use of biodiversity, traditional knowledge, innovations and practices).

22. The Fiji NBSAP comprises six focus areas which are further elaborated by 27 objectives and 104 identified actions. The objectives range from very broad ones to specific ones. The six focus areas are:

1. Community support – awareness, involvement and ownership
2. Improving our knowledge
3. Developing protected areas
4. Species conservation
5. Management of invasive species
6. Capacity building and strengthening.

23. Interestingly, Fiji's focus areas do not include some that were identified as important in several other Pacific Island countries and territories, principally financial sustainability (Cook Islands, Federated States of Micronesia, Samoa, Tonga), waste management (Cook Islands, Palau, Niue) and agro-biodiversity (Cook Islands, Palau, Tonga)⁸.

2.7 Other policies and programmes relating to biological diversity conservation and sustainable use

24. Fiji has various policies regarding biodiversity concerns: some have been approved by Cabinet; others have not. Actual legislation is discussed in Section 4.4. and listed in Appendix Eleven. The policies include:

- National Environment Strategy, 1993⁹
- Draft Climate Change Policy, 2002
- Forest Policy, 2007

⁷ Tortell, P. (2007) Review of the Action Strategy for Nature Conservation in the Pacific Island Region 2003-2007: Report of the Roundtable prepared for the 8th Regional Conference on Protected Areas and Nature Conservation; *Report 2 – Recommendations for strengthening the action strategy and enhancing its implementation*.

⁸ Roundtable for Nature Conservation. 2007. *Action strategy for nature conservation and protected areas in the Pacific Island region 2008-2012. Empowering local people, communities and Pacific institutions*. DRAFT.

⁹ From <http://www.adb.org/Documents/CAPs/FIJ/0103.asp>: 'In 1992, the Government prepared a report on the National State of the Environment and in 1993, a National Environment Strategy. The ADB TA supported the Government's effort **to establish a database for natural resources**, improve environmental awareness, and prepare more comprehensive legislation (TA for legislation and the database approved in October 1994)'. I have no knowledge of the existence of this database.

- National Rural Land Use Policy and Plan, 2005
- Watershed Management Master Plan, 1998
- National Plan for Natural Disaster Management, 1998
- Mangrove Management Plan, 1984 and 1987
- National Policy Plan for Fijian Mangroves 1986
- Integrated Coastal Resources Management programme, 2002
- Tourism Development Plan, 2007

25. The Environment Management Act (2005) stipulates that a National State of the Environment Report will be published at least every five years (§23); a National Environment Strategy must be formulated within 12 months of approval of the National State of the Environment Report (§24); and a Natural Resource Inventory and National Resource Management Plan must be formulated or reviewed before the National State of the Environment Report is formulated or reviewed (§25). All of these reports and plans must be approved by the National Environment Council (NEC; below) which also monitors them, etc (§8).

26. In other words,

- national resource inventory and national resource management plan are prepared,
- after that, a National State of the Environment Report (NSER) will be published (by 2010),
- a National Environment Strategy will be prepared within 12 months of NSER report approval.

The national inventory and management plan were discussed at this year's meeting of the NEC (August 2008). At that meeting, sub-committee was formed to design an action framework for making the inventory and management plan; the sub-committee will report back to the NEC.

27. Fiji is also party to several multi-lateral environment agreements (MEAs) (see: UNCBD Stocktake report). For example, the **Millennium Development Goals** (MDGs) that promote the protection and sustainable management of biodiversity, including genetic resources, species and ecosystem services that support human development. Goal 7 ('ensure environmental sustainability') is relevant to biological diversity conservation and sustainable use (Appendix Three). (see 2.10 for discussion)

28. Fiji has also followed the recommendation of Agenda 21 to adopt national strategies for sustainable development that should build upon and harmonise the various sectoral economic, social and environmental policies and plans that are operating in the country¹⁰. Fiji's **national strategic plans** encompass its national strategies for sustainable development – its 2003-05, 2007-11, and 2008-10 strategic plans are entwined with the CBD in promoting the mainstreaming of biodiversity conservation and sustainable use concerns (Appendix Four). (see 2.10 for discussion)

2.8 The NEC and the NCSD

29. The **National Committee for Sustainable Development** (NCSD) is based in the National Planning Office. It is mandated to facilitate a coordinated effort in promoting the concept and initiatives of sustainable development specifically with regard to international agreements to which Fiji is party – for example the Johannesburg Plan of Implementation (2002), the Mauritius Strategy (2005), and the Millennium Development Goals. These agreements require addressing economic, social and environmental consideration in the development process and Fiji is required to integrate them in plans and strategies. The NCSD is also expected to provide advice and report to the United Nations Commission on Sustainable Development (CSD), develop project proposals and access funds to implement them, and advise the Fiji Cabinet on sustainable development policies and projects. It is the NCSD that develops the environment and sustainable

¹⁰ Carter, E. (2007). *National biodiversity strategies and action plans. Pacific regional review*. Commonwealth Secretariat and South Pacific Regional Environment Programme (SPREP), October 2007.

development aspect of the National Strategic Plans (based on advice from line ministries including the Department of Environment).

30. It is to the NCSO that the Department of Environment is to report progress of the NBSAP and in return, the NCSO is supposed to recommend to the Department of Environment that the NBSAP be amended (NBSAP, 2007: 47).

31. The NCSO also submits reports to additional international fora to which Fiji is party; these reports are based on the reports to the UN CBD or separately prepared: Fiji submitted a report at the end of 2003¹¹ to the Mauritius International Meeting on SIDS (January 2005) based on the Pacific Regional Meeting for the Review of the Programme of Action for the Sustainable Development of SIDS, held in Samoa in August 2003 (I am informed (8 September 2008) that a second report was submitted last year (2007)). A template for national assessment of 'BPoA+10' is available^{12, 13}. Reporting to the Mauritius Strategy Implementation (MSI) for all of 2007 to June 2008 is due before the close of 2008. In the Department of Environment I cannot locate MSI reports between 2004 and the present, although I am informed by the National Planning Office that one was prepared in 2007.

32. The eleven-member **National Environment Council (NEC)** is established under the Environment Management Act (2005). It is responsible for coordinating environmental management initiatives emanating at international, regional and national levels and directing the formulation of relevant policies. Among other functions, the NEC approves the National Environment Strategy (above) and monitors its implementation, ensures that regional and international commitments are implemented, and advises the Government on international and regional treaties, conventions and agreements.

33. The NEC is responsible for upholding the environmental pillar of sustainable development whereas the NCSO considers the integration of sustainable development initiatives in national and sectoral development plans and strategies. According to the NBSAP (2007: 6) the NEC was to subsume the NCSO – but this has not happened.

34. The NEC is also required (Environment Management Act, 2005) to meet at least four times each year. However, this year (2008) it met for the first time in the third week of August. A second meeting is planned for November 2008.

¹¹ http://www.sidsnet.org/docshare/other/20031230154545_Fiji_NAR_2003.pdf - accessed September 2008

¹² See: www.sidsnet.org/ and www.org/esa/sustdev/sids/sids/htm - accessed September 2008

¹³ In April 1994, the United Nations Global Conference on the Sustainable Development of Small Island Developing States (SIDS) was convened in Barbados. The Conference adopted the Barbados Programme of Action (BPoA) that sets forth specific actions and measures to be taken at the national, regional and international levels in support of the sustainable development of SIDS. The World Summit on Sustainable Development (WSSD), Johannesburg, in 2002 reaffirmed the special case of SIDS and highlighted a series of SIDS-specific issues and concerns in the Johannesburg Plan of Action, adopted by the Summit. In a follow-up to WSSD, the United Nations General Assembly adopted a resolution which, among other things, called for a comprehensive review of the BPoA at an international meeting to be held in Mauritius in 2004, some ten years after its adoption. One of the key objectives of the International Meeting would be to seek and renew political commitment from all countries by focusing on practical and pragmatic actions for the further implementation of the BPoA through, amongst others, the mobilisation of resources and assistance for SIDS. The United Nations Commission on Sustainable Development (CSD), in the context of its multi-year thematic programme of work, continuously reviews the implementation of the BPoA and the Mauritius Strategy of Implementation.

2.9 Status of Implementation of CDB in Fiji

35. Consistent with its obligations under the CBD, the Government of Fiji has developed the freshwater and marine biodiversity, and to maintain the ecological processes and systems which are the foundation of national and local development.” In relation to protected areas, the strategy states that: ‘the establishment of a comprehensive and representative system of reserves and conservation areas at the national and local levels is critical to successful biodiversity conservation’. The strategy Fiji Biodiversity Strategy and Action Plan (published in 2007). Its goal is “to conserve and sustainably use Fiji’s terrestrial, describes Fiji’s existing system of protected areas as ‘rudimentary’ and calls for action to achieve the following objectives:

- establishment of a comprehensive and representative core protected area system;
- establishment of protected or conservation areas in addition to the core protected area system;
- effective management of existing protected areas; and
- adequate funding for protected area management.

36. Capacity Limitations for Implementation of CBD IN Fiji.

1. Systemic Capacity

- Old legislation requiring urgent updating and implementation
- Need more stringent guidelines for and monitoring EIAs
- Lack of coordination, integration, implementation and reporting amongst the three conventions.

2. Institutional Capacity

- Inefficient communication between stakeholder related to coordination, strategising, implementing
- Weak institutional capacity and infrastructure (DOE, Forestry, Fisheries. Landuse)
- Unclear mandates and definitions for implementation for government and non government stakeholders
- Relevant information tending to be centralised
- Unsustainable funding mechanism
- Lack of funding of relevant activities undertaken by Agriculture, Forestry, and fisheries
-

3. Individual Capacity

- Lack of accountability on international conventions reporting
- Lack of capacity building and professional training of relevant stakeholders including DOE staff
- Lack of effective public awareness
- Lack of relevant information and limited scientific research
- Lack of career paths and incentives and relatively low salaries

2.10 Protected Area (PA) Management

37. Protected area are recognized by IUCN (1994) as areas:

“of land and/or sea especially dedicated to the protections and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means”.

38. Protected areas are, of course important because of the critical role they play in biodiversity conservation. This role is recognized by most countries (including Fiji) that are Parties to the CBD. As noted, Article 8 obliges Parties to establish a system of Protected area to conserve biodiversity, but also to develop guidelines for the management of such areas and promote appropriate development adjacent to protected areas.

39. Apart from conservation of biodiversity, protected areas are important for other significant reasons. They ensure the continued flow of the ecosystem services, such as provisions of clean water and protection of soil resources. They provide significant economic benefits to the surrounding communities and contribute to spiritual, mental and physical wellbeing. Protected areas also help fulfill ethical responsibility to respect nature and provide opportunities to learn about the nature of environment. Each of these values of protected areas is important so there is a need for ecological management namely the performance or certain manipulations of the ecosystems including restoration of degraded habitats where these are necessary to safeguard, rehabilitate and sometimes enhance park or reserve values.

2.10.1 Current Status of Protected Area (PA) Management in Fiji

40. There is no systematic establishment of protected areas in Fiji. But this does not stop various statutory bodies such as the Department of Environment and the National Trust of Fiji Island undertake specific conservation roles for the government such as the National Trust’s register of Sites of National Significance (SNS). Other conservation NGOs working in Fiji have their own plans and activities, combining their own objectives and opportunities with the NBSAP needs.

Table 2 Parks, Reserves and Other Protected Areas In Fiji

Type of Protected Area Management	Areas on Protection
National Parks	<ul style="list-style-type: none"> • Lower Vuniviva Catchment • Mount Tomanivi • Nadrau Plateau (Western Sector) • Sigatoka Sand Dunes • Sovi Basin
Nature Reserve	<ul style="list-style-type: none"> • Draunibota and Labiko Island • Garrick Memorial • Nadarivatu • Naqarabuluti • Ravilevu • Rokosalase • Tomaniivi • Vunimoli • Vuo Island • Wabu Forest
Marine Parks	<ul style="list-style-type: none"> • Koroyanitu National Park

Marine Protected Area	<ul style="list-style-type: none"> • Bukatatanoa Barrier Reef • Fulaga • Great Astrolobe Lagoon • Makogai Island • Malolo Project • Manava Island • Namenalala Resort Marine Reserve • Sawaieke • Tavarua Island • Vuata Ono • Vuna (Waitabu) • Yanuca Marine Park
Forest Reserves	<ul style="list-style-type: none"> • Buretolu • Colo-i-Suva • Kalobo Water Catchment • Korotari • Maranisaga and Wainiveiota • Naboro • Nadarivatu/Nadala • Naitasiri • Rewa • Savura Forest • Taveuni • Tavua • Vago • Vunimoli • Yarawa
Forest Parks	<ul style="list-style-type: none"> • Bouma National • Colo-I-Suva • Mount Evans Forest Park • Waikatakata Cultural • Waisali
Marine Sanctuary	<ul style="list-style-type: none"> • Treasure Island
Faunal Reserve	<ul style="list-style-type: none"> • Bird Island, Beqa Lagoon • Gau • Moturiki • Mount Washington, Kadavu • Mubulau Island • Namena Lala Island • Nanuku Islet • Naulu-Lokia Swamps • Navua Swamp • Neoveitchia Storckii Palm Reserve • Nukubasaga and Bukubalati • Nukutolu Islets • Ogea Levu • Selala Mangrove Reserve • Silktail Reserve • Sovu Islands • Taqua Rocks

	<ul style="list-style-type: none"> • Vatu-i-Lami Island • Vatu-i-Ra Island • White Rock • Yabu Island • Solodamu Bird Sanctuary
Recreational Reserve	<ul style="list-style-type: none"> • Turtle Island Reserve
Wildlife Sanctuary	<ul style="list-style-type: none"> • Yadua Taba Island Crested Iguana Reserve • Cultural Heritage • Tavuni Hill Fortification Project
Reserved Forest	<ul style="list-style-type: none"> • Buretolu • Colo-i-Suva • Kalobo Water Catchment • Korotari • Maranisaga and Wainiveiota • Naboro • Nadarivatu/Nadala • Naitasiri • Rewa • Savura Forest • Taveuni • Tavua • Vago • Vunimoli • Yarawa
Wetland International Importance	Navua Conservation Area

Source: <http://www.parks.it/world/FJ/Eindex.html>

2.10.1.1 In-situ

41. An example of such is an initiative taken by the project IBA (Important Bird Area) (Masibalavu, 2006) is designing the project to meet the NBSAP activities and objectives notably Goal 1.1 of the CDB programme of work on Protected Area: "To establish and strengthen national and regional systems of protected area integrated into the global network as a contribution to globally agreed goals.

42. Fiji is fortunate in retaining large areas of natural old growth forests, as its steep topography and local land ownership has slowed the rate at which forest have been cleared, logged or otherwise degraded. However very little of the forest are protected or conserved. One of the most effective ways to conserving biodiversity is through protected areas. 'Protected areas' is an umbrella term which can have a number of legal meanings. In Fiji, it is particularly important to stress that protected areas do not necessarily restrict local people's rights over the land and resources. Fiji has 7 declared nature reserves (Masibalavu, 2006) and several other legally protected areas but none of these have an active management plan.

43. Other forest reserves of the same nature have been converted to mahogany plantations. All Fiji's established protected areas still have significant conservation needs, despite their legal protection. Most important is to secure real rewards for landowners who choose to protect their resources. Also important is resourcing active site management. Lessons can perhaps be learnt

from Fiji's marine conservation sector which has made significant advances and successes in recent years.

2.10.1.2 Ex- situ

1. Kula Eco Park

44. Kula Eco Park is located on Fiji's Coral Coast, approximately 5 kilometer's south of the town of Sigatoka. Established as a bird park in the late 1980's, the park was taken over by Kula Eco Park Management in January 1997. Privately owned and run, its focus is the preservation of Fiji's indigenous flora and fauna, including reptiles, bird life, amphibians, tropical fish, the Fiji Flying Fox (Fiji's only native mammal), insects, butterflies and a wide range of trees and shrubs.

45. In 1998, (in cooperation with the International Conservation Fund for the Fijian Crested Iguana and the Zoological Parks Board of New South Wales, Australia) the park established a captive breeding programme for the critically endangered Fiji Crested Iguana and seven juveniles were successfully raised.

46. In 2007, (in cooperation with the Biological Sciences Division at the University of the South Pacific) the park commenced a captive breeding programme for the endangered Fiji Ground Frog

2.10.2 Other Measures for PA Management

47. In January 2005, the Government of Fiji announced that: "by 2020, at least 30% of Fiji's inshore and offshore marine areas... will come under a comprehensive, ecologically representative network of marine protected areas, which are effectively managed and financed." This commitment encompasses both coastal and off-shore areas within Fiji's exclusive economic zone.

48. The national Government's commitment to protected activities is demonstrated by the active involvement of government agencies in protected area initiatives in Fiji, in collaboration with non-government organisations, academia and communities – for example:

- the Department of Fisheries acts as the Secretariat for the Fiji Locally Managed Marine Area (FLMMA) Network, a rapidly growing network of community-based marine resource management areas, supported by national and international NGO's and the University of the South Pacific; and
- the Department of Forestry, the National Trust of Fiji, the Native Land Trust Board, the Ministry for Fijian Affairs and the Department of Environment are working with NGO partners towards the establishment of a conservation area in the Sovi Basin, Fiji's largest and most diverse forest area.
- The National Trust of Fiji, the Native lands Trust Board, Forestry Department and other agencies and organisations have assisted landowners in the setting up of a number of protected areas such as the Bouma National Heritage Park, Waisali Rainforest Reserve and the Koroyanitu National Heritage Park. These protected areas are also used for eco-tourism by the landowners.
- The National Trust of Fiji manages a number of protected areas such as the Sigatoka Sand Dunes National Park, Yaduataba Island Sanctuary, Momi Battery Historic Park and the Garrick Estate.

- The Department of Water and Sewerage and the Fiji Electricity Authority hold reserves for water catchment protection purposes in areas that are also of ecological significance and there have been discussions to include these areas as part of Fiji's protected area network

2.10.3 Benefits From Protected Area

49. The 'goods' from a protected area include recreational opportunities, basic food items and genetic materials, while the 'services' are such things as biodiversity conservation, crop pollination, water purification game viewing. Such goods and services provide people with a stream of benefit from the existence of the protected area. The benefits can be divided into 'use' and 'non-use' benefits which can in turn be subdivided into direct, indirect, option bequest and existence benefit. This is further simplified in the table below

Table 3 Demonstrates the types of benefit generated by a number of protected area goods and services.

Use			Non-use	
Direct Use	Indirect Use	Option	Bequest	Existence
Recreation	Ecosystem Services	Future Information	Use and non use value for legacy	Biodiversity
Sustainable Harvesting	Climate Stabilisation	Future Uses (Indirect and direct)		Ritual or spiritual values
Wildlife Harvesting	Flood Control			Culture and Heritage
Fuelwood	Groundwater Recharge			Community Values
Grazing	Carbon Sequestering			Landscape
Agriculture	Habitat			
Gene Harvesting	Nutrient Retention			
Education	Natural Disaster Prevention			
Research	Watershed protection			
	Natural Services			

Source IUCN, 2000

2.11 NATIONAL ACTIVITIES UNDER THE CONVENTION

50. **Fiji activities under the CBD have been and are being performed by several stakeholders: Government, non-government organisations, academic institutions, community-based organisations, statutory bodies, private enterprises, regional non-government organisations, and some civil organisations and international donors.**

2.11.1 GOVERNMENT

1. The Native Lands Trust Board, Departments of Environment, Forestry, Fisheries and the Fiji Affairs Board have carried out programs under the CBD – usually in conjunction with non-government organisations. **The programs have included assessing Sivi Basin, management plans in nature reserves, forest policy and timber identification, integrated resource management plans, studies on fisheries resources, enabling legislation, producing awareness material and inventories of resources.**

2. The departments of Health (Nutrition section), Town Planning, Lands, Education (Curriculum Development Unit - awareness), Rural Development, Tourism and Commerce also perform conservation activities as often minor parts of their major functions.

3. The **Department of Agriculture** carries out programmes with farmers on planting of native fruit trees and vegetables. It also regulates the clearing of land (e.g. riparian buffer zones) in agricultural areas. The Department also carries out awareness programs on safe use of agricultural chemicals.

4. The **Quarantine** section within the Department inspects incoming and outgoing shipments and passenger luggage for potentially harmful diseases and organisms and is the intercepting agency under CITES (see below). Fiji's Quarantine section has a bilateral quarantine agreement (BQA) with Australia and New Zealand pertaining to quality assurance for exported agricultural products (e.g. mango, breadfruit, eggplant, pawpaw).

5. **The Forestry Department carries out a timber certification process. Fiji has a Code of Practice for logging (the first in the Pacific region; now emulated by neighboring Melanesian countries) and this Code has been undergoing a review. The Code is allied to a legally-binding Forestry Decree, while the Forest Policy was revised in 2007. The Code of Practice establishes guidelines for sustainable logging practices. A process of forest certification is underway in Fiji along the lines of the international Forest Stewardship Council (see NatureFiji/MareqetiViti, below).**

6. An inventory of national forests was carried out in 2007. There are two types of forest reserves in Fiji: 'forest' reserves (of which there are 16, totaling 29,800 hectares) and 'native' reserves (seven, totaling 574.2 hectares). There is also a protected forest in Serua, totaling 17,089 hectares. Drawa forest, in Vanua Levu, is managed under a strict sustainable logging practice which entails allocating quota on tree species and size.

7. The Department of Forestry works actively with several non-government organisations, including the Wildlife Conservation Society, World Wide Fund for Nature, Birdlife International, Conservation International, and the South Pacific Regional Herbarium.

8. The **Fisheries Department** is an active participant in the Fiji Locally Managed Marine Areas network (see FLMMA, below). It also works with the Pacific Regional Environment Programme (SPREP), the Secretariat of the Pacific Community (SPC) and other local and regional organisations in awareness raising (e.g. 'Year of the Turtle'; 'Year of the Coral Reef') and surveying (e.g. collaborating with the Society for the Conservation of Reef Fish Aggregations in conducting surveys and awareness raising in northern and eastern Fiji).

9. As part of its mandate to sustainably manage inshore fisheries resources, the Fisheries Department has been carrying out biodiversity assessments of the 410 qoliqoli in Fiji. It also monitors landings and exports of pelagic fishes (e.g. tunas) and other marine products from Fiji waters (e.g. trochus, aquarium fish, beche-de-mer) and performs inspections and licensing of commercial premises.

10. The **Department of Environment** performs a coordinating role with other environment-associated departments (as above) and develops and supports legislation and conventions relative to the environment and conservation activities.

2.11.2 NON-GOVERNMENT ORGANISATIONS

1. Birdlife International

BirdLife International is a global partnership of conservation organisations that strives to conserve birds, their habitats and global biodiversity. It works with people in more than 100 countries and territories worldwide towards sustainability in the use of natural resources. The Fiji secretariat of Birdlife International commenced in 2003. Activities:

Bird surveys at 20 forested sites in Viti Levu, 2003-06; Bird surveys at eight forested sites in Vanua Levu, 2003-04; Book/inventory: "Important Bird Areas (IBAs) in Fiji: Conserving Fiji's Natural Heritage", 2006; Report of the preliminary baseline survey of the terrestrial vertebrate fauna of the Waivaka catchments, Naomia, Viti Levu, 2003

Sovi Basin biodiversity survey, Viti Levu, 2005; Management plan, Ravilevu Nature Reserve, Taveuni, Cakaudrove, 2007; Management plan, Tomanivi Nature Reserve, Ba, 2007; Surveys on the endangered pink-billed parrot finch, 2003-04; Community training on identification, catch and release for petrels, 2005-06; Community training. Predator identification and protection of petrel burrows, Gau Island, 2005; Specialist training for community representatives on petrel identification and conservation, 2005.

More recently: Eradicating rats, invasive alien species (IAS) on Vatu-i-ra Island, 2006;

Vatu-i-ra Island declared rat-free early in 2008; Awareness raising program called Community-Based Conservation Groups at Fiji's Key Conservation Sites initiated, 2006;

Eradication of rats from the seven islands in the Ringold Island group in north-eastern Fiji, 2008; Developing proposals with other NGOs (e.g. IUCN) to consider addressing legal impediments to establishing a network of protected areas in Fiji, 2008; Developing a proposal for empowering local people on their rights, 2008; Viwa Island – rat eradication project, 2008.

2. Conservation International (CI)

This NGO has its parent body in the U.S.A. The NGO's mission is to 'conserve the Earth's living heritage – our global biodiversity – and to demonstrate that human societies are able to live harmoniously with nature. We safeguard valuable species, preserve the most important landscapes and seascapes, and support communities that care for and rely on Earth's natural resources. To reach these goals, we focus on three strategies: dedicating ourselves to innovation, raising awareness about conservation, and maintaining business-like effectiveness.

Activities:

In Fiji, CI has assisted in creation of marine protected areas, raised environmental awareness in communities. Participated in a 'Sovi Basin Workshop, Viti Levu - a direction forward', 2005. It also has conducted surveys in association with the South Pacific Regional Herbarium and the Department of Forestry.

More recently: Protecting and conserving the Sovi Basin rainforest (with Fiji Water Foundation and the National Trust of Fiji), 2007-08. (No other information is forthcoming at this date).

3. Econesian Society

This is an informal society in Fiji made up of university undergraduate and post-graduate students, most of whom have studied Geography students under Professor Randy Thaman, USP. The society performs at functions – mainly in singing; they may also perform short dramas. There is no identified product (except their songs that they compose to suit each occasion at which they perform). Funding is usually in kind.

The Econesian Society is part of the Pacific Youth Environment Network.

4. Fiji Locally Managed Marine Areas Network (FLMMA)

The Locally Managed Marine Area (LMMA) network's website is a portal for information on community-based marine conservation and its practitioners. The Locally Managed Marine Area (LMMA) Network is a group of projects and practitioners who have joined together to increase the success of their marine conservation efforts. The Network uses a shared framework for learning and communications that transcends geographic, linguistic, and cultural barriers. It allows members to measure and improve the success of their marine conservation efforts.

FLMMA received the prestigious Equator Initiative Award from the United Nations Development Programme, out of more than 420 total nominations and 27 finalists, 2002

The FLMMA approach has been formally adopted by the Fiji Government, 2006

FLMMA received the prestigious Whitley People and Environment Award, 2004

Activities:

Marine protected areas (MPAs), 2000 onwards; community awareness raising through its ongoing Community Information, Communication and Education Campaign.

There are 213 sites (representing a much larger number of communities) in Fiji, 2008

FLMMA is trialing catch recording in about 30 sites around Fiji, gathering subsistence, artisanal and catch-per-unit-effort data, 2008

5. Fiji Marine Aquarium Council (FMAC)

This global organisation is under restructure after being previously active in Fiji. Its primary mission is establishment of quality assurance in the aquarium fish industry, and several Fiji companies that export marine aquarium fishes and corals are 'MAC-accredited'. The Fisheries Department is FMAC's secretariat.

6. Foundation for Rural Integrated Enterprises N Development (FRIEND)

FRIEND is a registered non-government organisation administering community programs for unemployed and rural women. The NGO is particularly focused on poverty alleviation and creating gender equity in rural communities in Fiji. It recently embarked with the Department of Agriculture on a food security mission – planting local food and fruit trees. In conjunction, FRIEND raises community awareness of sustainable resource use practices.

7. Frontier Fiji and Society for Environmental Exploration

The Society for Environmental Exploration was established in 1989 as a non-profit conservation NGO dedicated to safeguarding biodiversity and ecosystem integrity. Since its inception, it has hosted many global conservation projects under the banner name of 'Frontier'. Frontier projects advance field research and implement projects that will help conserve biodiversity and help develop sustainable livelihoods. In Fiji, the society is known as 'Frontier-Fiji'. The Society is based in the United Kingdom; some society members have worked at Gau Island (Lomaiviti Group) with the School of Marine Studies (USP) in recent years.

8. Greenforce

Or the 'Green Expedition Company'. This organisation is based in the United Kingdom and the U.S.A. It specialises in marine and terrestrial scientific conservation expeditions for gap year students, university students and those wanting to undertake conservation activities world-wide.

Greenforce members have worked in Fiji with other stakeholders, including the National Trust and the Wildlife Conservation Society (WCS).

9. GTZ/SPC Forestry Program in the South Pacific

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH [German Agency for Technical Cooperation] and the Secretariat of the Pacific Community.

The GTZ is an international cooperation enterprise for sustainable development with worldwide operations that conducts a regional forestry project with the Secretariat of the Pacific Community. Forestry resources play an important economic role in Fiji and other Pacific island States. Due to increasing demographic pressure and the promotion of the modern sector, more and more areas of forestland have been cleared for permanent and shifting cultivation, for industrial development and infrastructure as well as for timber exports to the industrialised countries in the region. The GTZ/SPC forestry program concentrates on environmental policy and the conservation and sustainable use of natural resources.

Activities:

Report on regional awareness raising tour of local and global importance on investing in forests and trees for a secure future for our people, 2005; Assessment of the economic value, hydrology & soil resource of the Nakavu Forest, 1999-2000; Sustainable forest management and economic appraisal of Drawa Block Project, 2003; Forest Policy Statement, 2006; Profile of the Drawa Model Area (appraisal for a community managed forest area in Fiji), 2005; Financing instruments & financing strategies for Sustainable Forest Management in Fiji, 2006; Brochure, 'Sustainable Forest Management', 2000; Brochure, 'Sustainable forest management: the way beyond the year 2000, 2000; Posters: Finding the right way - developing community-based small-scale forestry enterprises with Melanesian customary landowners; and Our Forests - Our Future, 2006; Workshop reports: regional workshops on training of trainers in forest certification & mandate, procedures, tasks & duties of national working groups on forest certification; Sustainable forest management & timber certification workshop; Regional workshop on capacity building strategies in forest certification in the Pacific, 1999-2000; Report on regional awareness raising tour of local and global importance on investing in forests and trees for a secure future for our people, 2005; Volume increment in managed Fijian rainforests. A comparison of differently treated compartments of the natural forest management pilot project area in Nakavu, 2001; Report on the results of the Second tree selection in seven compartments in natural forest management pilot project, 2003; Assessment of the economic value, hydrology & soil resource of the Nakavu Forest, 2000; Report on regional training course on forest inventory & data analysis: experimental design & applied statistical analysis in forestry - a training course for non-statisticians, 2003

Brochure: Sustaining forest resources in the Pacific, 1998; Book/brochure: Setting up a tree nursery - a guide for extension workers & communities, 1998; Book/brochure: Fijian communities plant trees, 1998; Brochure: Agroforestry, the way ahead to the year 2000; and Recommended tree species on agroforestry, 1999; Agroforestry 1 & 2: A way to better farming - a manual for trainers, teachers & extension workers, 1999; Reports on the botanical and ethnobotanical studies. Drawa Block, Vanua Levu, 2000; Inventory of timber species (Nakavu/Namosi & Drawa Block, Cakaudrove), 2005; Forest cover analysis in Fiji using LandSat TM data, 2006; Report on analysis of increment conditions of Fiji's natural forests, 2005; Forestry facts & figures Fiji, 1999; Report on regional training course on forest inventory & data analysis, 2003; Report on raising forest industry's awareness of forest certification in the South Pacific, 2001; Report on development of capacity building strategies in forest certification in the Pacific region, 2002; Report on floristic survey of the native forest catchment in Cakaudrove Province, Viti Levu, 1999; Reports on training, preliminary evaluation, evaluation and pre-harvest inventory and management of Drawa Block, Vanua Levu, 2001; Report on a course on identification of indigenous tree species, 1999.

More recently: Sustainable land management, medium sized project, 2008; Capacity building and mainstream sustainable land management project, 2008; Burning timber as fuel energy project, 2007.

10. International Union for the Conservation of Nature

The IUCN is the world's oldest and largest global environment network. Although IUCN has been active in the Pacific region for many years through its volunteers, only in the last 18 months did it establish an office in Suva. IUCN also chaperones the Red List of endangered species, which is developed by the various Species Specialist Groups and Invasive Species Specialist Groups.

Much of its work revolves around liaison – between other non-government groups, government, and any relevant stakeholders.

Recent activities:

Hosted 'Roundtable Conservation' meeting in Suva, 2008; Listing of the Fiji Ground Frog, *Platymantis vitiana*, as Endangered on the IUCN Red List, 2008; Invasive species specialist group (ISSG) host, 2000-ongoing. IUCN also proposes to enhance the quality of Pacific information in the Red List through training and liaison and, with other non-government organisations, is raising awareness of the needs for and actions on national protected areas in Fiji.

11. Live and Learn Environment Education Inc.

Live & Learn specializes in community participatory education to promote sustainable livelihood development and conservation of environmental resources in some of the most vulnerable communities and biologically diverse regions in Asia and the South Pacific. Its office in Fiji was opened in 1998.

Activities:

HOPE (Helping Our Planet Earth) toolkit and program for primary schools, 2008; HOPE for Peace teacher training, 2006-07; River Care Program for secondary schools (Vodafone Fiji Foundation), 2008; Project WET Fiji (Water Education for Teachers), training workshops in environmental education topics, 2007-08; Projects in support of Arbor Day and Environment week (with Dept of Education), 2007-08; 'World Water Day' programme, 2007-08; Non-formal education on environment, water quality and waste management (with FAB), 2007-08; 'Governing water' program, 2005-07; 'Developing Sustainable Communities' program (with SPC, Dept Agric & National Centre for Small Micro-Enterprise Development), 2007; Advancing Water Governance, 2007; Community Education Toolkits, 2007; 'Keeping your drinking water safe: a community toolkit' (with SOPAC, WHO, IAS-USP), 2007; 'Healthy water hopscotch' game, 2006; Report: 'Building a sustainable future. A rapid assessment of perceptions towards environment and sustainability issues in rural Melanesian communities', 2007

12. Mamanuca Environment Society (MES)

This NGO was formed in 2002 by the Mamanuca Fiji Islands Hotel and Tourism Association members, following a recommendation from the Coral Cay Conservation group. The main objective of the MES is to 'promote environmental awareness and protection that supports sustainable tourism and community livelihood in the Mamanuca group'.

The main activities in which the MES is involved are environmental capacity awareness for resource developers, resource managers, schools and communities, management of (small) oil spills, water quality analysis projects, turtle conservation (it received a UNDP-GEF grant for awareness raising and surveys), waste management awareness raising (e.g. on problems caused by dumping of waste from the Nadi area on Viti Levu), and coral reef protection and restoration.

13. Nature Fiji/ MEREQETI VITI

Established in 2007, NFMV is Fiji's first local non-government organization. Its mission is to enhance biodiversity and habitat conservation, endangered species protection and sustainable use of natural resources of the Fiji Islands through the promotion of collaborative conservation action, awareness raising, education, research and biodiversity information exchange.

Activities:

A Fern tree, *Drautabua* (*Acmopyle sahniana*) survey, 2008; Supporting the breeding of the Collared Lory at the Kula EcoPark at Korotogo, 2008; Surveying for the Critically Endangered Red-throated Lorikeet, 2007-08; Conservation of Fiji's sago palm project, 2008 (with DoE and NTF); Endangered species compendium project, 2008; Conservation Values study of Mago Island, 2007.

NatureFiji/MareqetiViti has recently become a member of the Forest Stewardship Council. The FSC forest management standards are the most respected in the world and wood with their trademark is the best known brand representing wood coming from a responsibly managed source. There are no forests in Fiji that are certified to FSC or other standards, but it remains a priority policy for the Forestry Department. Over the past 13 years, over 90 million hectares in more than 70 countries have been certified according to FSC standards while several thousand products are produced using FSC -certified wood and carrying the FSC trademark.

14. OISCA Fiji

OISCA's mission is to 'contribute to humanity's environmentally sustainable development through a holistic approach emphasizing the interconnectedness of agriculture, ecological integrity, and the human spirit'. To accomplish this, OISCA implements and advocates hands-on skill and knowledge programs, and 'cultivating such spiritual qualities as dedication, self-reliance, and universal brother-sisterhood'. In Fiji, OISCA works mainly with communities and youth; its headquarters are in Sigatoka.

Activities:

Children's Forest Program, 1992-ongoing; Mangrove planting/reforestation in seven sites in Viti Levu, 1994-1999; Coral restoration project in 28 sites in Viti Levu and Vanua Levu, 2001-ongoing; Planting of native fruit trees adjacent to communities, Sigatoka area, 1998-ongoing; Community mangrove rehabilitation programme, Sigatoka, 2006-07.

15. Partners in Community Development, Fiji (PCDF)

This organisation is the 'local' component of FSPI (below).

Activities:

Coral gardens project, Coral Coast, Viti Levu, 2005-ongoing; Ecotourism development, 2007-ongoing; Restoration of degraded coral reefs, Coral Coast, Viti Levu, 2006-ongoing; Marine Protected Areas establishment, Viti Levu, 2007-ongoing; Monitoring of reef rehabilitation pilot site at Motoriki Island, Viti Levu (with CRISP), 2008; and training of Fijian resource persons in coral transplanting techniques and site monitoring techniques (with CRISP), 2008

16. Seacology

Seacology is a non-profit environmental organisation that 'aims to preserve the highly endangered biodiversity of islands throughout the world'. Seacology attempts to 'link local environment protection with benefits for islanders'. It is a U.S.A. organisation and it operates by 'trading' – i.e. exchanging one benefit a community wishes for with the promise of that community to protect or conserve a habitat or organism.

In Fiji, Seacology has carried out several 'exchanges': on Matuku Island (built a community centre in exchange for establishment of a no-take marine reserve), Kadavu (built flush toilets in exchange for a marine protected area), Ketei village, Savusavu (built a community centre in exchange for creation of a forest reserve); Naviti Island (construction of a chiefly house in exchange for creation of a marine reserve), and similar such exchanges for 20 other communities in Fiji, from Ono Island to the Yasawas.

17. SeaWeb

SeaWeb is a communications-based nonprofit organisation that uses social marketing techniques to advance ocean conservation in the Western Pacific. It raises public awareness, advances science-based solutions and mobilizes decision-makers around ocean conservation. In Fiji it generally is engaged in promoting community awareness of marine conservation, working with the FLMMA and the Society for Conservation of Reef Fish Aggregations. SeaWeb's main office is in the U.S.A. but it has other international offices including Papua New Guinea. There is an office in Suva.

SeaWeb started working in Fiji in 2005. Seaweb helps the media promote a healthy ocean, trains communities in media liaison, submits environment awareness articles to local newspapers for publication, helps reporters media write related stories, and puts media in contact with experts.

18. Wetlands International — Oceania

Wetlands International is a global NGO that works to achieve the conservation and wise use of wetlands, to benefit biodiversity and human well-being. Its mission is 'to sustain and restore wetlands, their resources and biodiversity for future generations'. The Oceania office is one of 16 Wetlands International offices around the world.

Activities:

The status of mangroves: global, Asia-Pacific & the Pacific Islands region. Proceedings of the Pacific Regional Workshop on mangrove wetlands protection & sustainable use, 2003; *Schismatogobius vitiensis*, a new freshwater goby from the Fiji Islands, 2005; Freshwater fishes from Fiji of the subfamily Sicydiinae, with descriptions of three new species (Teleostei: Gobioidae) and notes on their ecology, 2007; Redescription of *Yirrkala gjellerupi* (Weber & de Beaufort, 1916), a poorly known freshwater Indo-Pacific snake eel (Anguilliformes; Ophichthidae), 2007; Anemonefishes, 2005; Aquatic fauna & water quality of five river catchments in Macuata Province, 2006; A checklist of freshwater & brackish water fishes of the Fiji Islands, 2006-08; Report to the WWF on a review of seven freshwater ecoregions in Oceania based on diversity of freshwater ichthyofauna: Fiji, Solomon Islands, New Caledonia, Vanuatu-Santa Cruz, Lord Howe Island, Norfolk Island, & the Hawaiian Islands, 2006; A preliminary study of freshwater fauna & water quality of Kubuna River & tributaries with recommendations for conservation action, 2005; Freshwater fishes of Waisai Creek & allied hot springs systems, 2004; Report to WCS on a preliminary investigation of priority ichthyofauna & watershed ecosystem services for assessing representation in Fiji's forest reserves, 2003;

Asia Pacific Wetlands Managers' training program: training course 'Freshwater fishes of Fiji: an advanced taxonomy, identification & applications for wetland management', 2001; Asia Pacific wetlands managers' training program: training course 'Standard coral reef monitoring techniques for managers & communities', 2002.

More recently:

Report to WWF: Fiji's Great Sea Reef. The first marine biodiversity survey of Cakaulevu and associated coastal habitats, Jenkins, Lovell, Sykes, Skelton, 2005; Freshwater fish survey of Kubuna River, 2007; Freshwater fish surveys in Bua, Macuata, Nadroga, Taveuni, Rakiraki and Yagara, 2006-08; and Development of 'Upper Navua Conservation Area' as a RAMSAR site (with BI and WWF SPP), 2006. Site includes Fiji sago (*Metroxylon*), two species of endemic gobies and 17 species of endemic birds.

19. Wildlife Conservation Society (WCS)

The WCS is based in the U.S.A. and 'saves wildlife and wild lands through careful science, international conservation, education, and the management of the world's largest system of urban wildlife parks'.

Activities:

Waimanu Landowners Conservation Project, 2005-06; An ecosystem-based approach for managing tropical coastal marine ecosystems, 2005-06; Kubulau qoliqoli marine reserve network, 2006; Fiji watersheds at risk, 2004-06; Heritage trees of Fiji, 2003; Coral bleaching refugia, 2004-06; Dry forest vegetation survey for Yaduataba, 2002; Fiji's Vatu-i-ra world heritage seascape: an ecosystem-based approach for mapping tropical coastal marine ecosystems, 2004; Fiji invertebrate survey project, 2004; Long-horn beetle, 2002-03; Interesting flies from Malaise Traps in Fiji, 2003; Fiji Islands terrestrial arthropod study, 2003;

Invasive fire ant awareness for Customs & Quarantine personnel of Pacific Island nations - training and capacity building program, Fiji, 2006-07.

More recently:

WCS is involved in several smaller (e.g. awareness raising on harmful exotic insects, such as fire ants) and two larger projects. Of the latter, WCS (with WWF, WI-O, and the Department of Forests) is engaged in ecobased management in the Kubulau area, Bua, Vanua Levu. In this project all ecosystems and their interconnectivity are studied, the objective being the development of a "functional conservation strategy". The other major project is taxonomic, recording the diversity of terrestrial invertebrates, a project performed over several years with the support of the Bernice P Bishop Museum in Hawaii.

20. World Wide Fund for Nature (WWF South Pacific and Fiji Country Programme)

WWF is a global organisation whose mission is to promote living in harmony with nature by conserving the world's biodiversity, ensuring that the use of natural resources is sustainable, and promoting reduction of pollution and wasteful consumption. The Pacific programme aims 'to support Pacific Island people in conserving and sustainably managing our natural inheritance for present and future generations.'

Activities:

Wetland ecosystems in Fiji: uses and distribution, 2000; Restoring sustainable livelihoods on Kabara Island, 2006-08; Self Help Tool Kit for the marine protected areas for coastal communities of Fiji to encourage sustainable livelihoods, 2005-07; Conservation & sustainable use of the globally outstanding biodiversity in marine environments of Fiji, 2005-07; The South Pacific Marine Program - Fiji activities, 2004-07; Fiji's Vatu-i-Ra heritage seascape ecosystem-based approach, 2004-06; South Pacific whale sanctuary, 2005-07; South Pacific marine turtles programme of work, 2005-07; Report of the mangrove flora & fauna surveys conducted within Lomawai Reserve, Bole Reserve & Lotonaluya Reserve, Tikina Wai, Nadroga, 2003; Inventory of wetlands - Kuta growing areas. Part 1: location maps, site maps, description and status of area, 1999.

More recently:

Gau Island and Macuata Province protected areas project, 2007-08; Project to secure representative network of MPAs in ecologically and biologically important sites, 2008-ongoing; Inventory and sustainable use of species policy, 2008-ongoing (with Australian Biological Survey); Thirty percent of Fiji's waters as a marine part by 2020, 2006; Fiji Islands Marine Ecoregion project, 2004-5; Community natural resource management and enhancement in Ono-i-Lau for biodiversity conservation and sustainable livelihoods, 2006-07.

2.11.3 ACADEMIC

1. The University of the South Pacific

a) Geography Department

Activities:

Vegetation & vascular plants of the proposed Upper Navua Conservation Area (UNCA), southwestern Viti Levu, Fiji Islands, 2005-06; Traditional ethno-biological knowledge, resource use & community-based biodiversity conservation in Fiji, 1998; Fiji National Biodiversity Strategy and Action Plan, report of working group 4. 1998.

More recently:

MSc project (Takeda), flora of Sigatoka Sand Dunes and the impact of invasive species (with support from National Trust), 2008; MSc project (Kuruyawa), women in fisheries on Beqa, 2008; MSc project (Fong), ecology and cultural information on parrotfishes, 2008; MSc project (Mere), fruit bats, 2008; 'Urban and homegarden agroforestry in the Pacific Islands: current status and future prospects', 2006, Thaman, Elevitch and Kennedy; 'Nasoata Mangrove Island, the PABITRA coastal study site for Viti Levu, Fiji Islands', 2005, Thaman et al.; Finfishes of Vanua Navakavu, Viti Levu, Fiji Islands, SPRH Biodiversity and Ethnobiobiodiversity report no. 4, 2008, Thaman, Fong, Balawa.

b) Institute of Marine Resources

Activities:

Turtle tagging project (with WWF), 2007- ongoing
Shark finning project (proposal), 2008
CRISP and GCRMN activities (see below)

c) Institute of Applied Sciences

Activities:

Community based closed areas in Fiji: a case study in the fishery effects of marine reserves and fishery closures, 2002; Marine protected areas (MPAs), 2004-ongoing

Biodiversity survey for Waisali Forest Reserve, 2004; Strengthening a network system of coastal management in Fiji: progress & lessons learned towards integrated coastal management on the Coral Coast & implications for national policy. Joint project between Government, IAS & CRC (University of Rhode Island, U.S.A.); Integrated coastal management (ICM); Coral Coast, 2002-ongoing; Survey of the current status of the proposed mangrove sanctuaries for three villages in Tikina Wai, Nadroga Province, 2002; Report of the preliminary JICA/MRD baseline survey of the flora & fauna & vegetation of Waivaka South Province, Fiji, 2003; Report of the preliminary baseline survey of the terrestrial vertebrate fauna of the Waivaka catchments, Naomia, Viti Levu, 2003; Baseline flora and fauna survey of the Sovi Basin, Naitasiri, 2003; Report of the mangrove flora & fauna surveys conducted within Lomawai Reserve, Bole Reserve & Lotonaluya Reserve, Tikina Wai, Nadroga, 2003; Vegetation status assessment of Laucala Island, Cakaudrove Province, Fiji, 2006; Vegetation ecology survey: vegetation mapping & prioritisation of the Fiji petrel (*Pterodroma macgillivray*) habitat on Gau Island, Fiji, 2006; Vascular plants & vegetation of Makuluva Reef Islet, Rewa Province, 2004; Botanical study on the proposed Caudua Point resort & residential sub-division project, Nabukavesi, Namosi, 2006; Baseline biological survey report of the Vatu-i-lailai marine protected area, Tikina Korolevu-i-wai, Nadroga, 2006; Fisheries resource assessment report for the Koroi Wai qoliqoli, Viti Levu, 2003; Coral diversity, Mamanuca Islands & Coral Coast, Fiji, 2005; Marine baseline survey of Champagne Beach, Yasawa Island; Biodiversity survey for Waisali Forest Reserve, 2004; Biodiversity survey, Gau Highlands, 2005; Sovi biodiversity survey, 2005

Coastal water quality & ecological studies of proposed site for Bua Bay port development, Wairiki, Bua, 2004-05; Coastal water quality & marine baseline studies of the proposed site for FPCL (Fiji Ports Corporation Limited) Rokobili Port Development, Suva & assessment of potential impacts, 2005; Marine baseline survey & coastal water quality study of Anchorage Beach Resource, Vuda Point; A revision of the genus *Septaria* Ferrusac, 1803 (Gastropoda; Neritimorpha), 2001; Report on the cooperative mineral exploration environmental baseline study in the Viti Levu South area, the Republic of the Fiji Islands, 2004; Survey for the presence of Fiji's crested iguana (*Brachylopus fasciatus*) on Macuata Island, Vunitogoloa, Ra Province, 2004; Empowering local communities: case study of Votua, Ba, Fiji, 2003; The role of locally managed marine areas (LMMAs) in the development of eco-tourism in Fiji, 2005; Effects of collection on ornamental reef fish populations in Fiji. [A pilot study of fish population in collection and non-collection areas], 2002; Report of the Tikina Vanuaso Community Marine Resource Biological Monitoring Training Workshop, 2002

More recently:

Maintenance of an aquaculture farm at USP for raising reef fish post-larvae, accompanied by the training of three Fijian fishermen and a technician (with CRISP, 2008);

Village site identified for a technology transfer operation in order to test the post-larvae viability in Muaivoso (with CRISP, 2008); Preliminary study on how to improve the legal framework of Fiji to conduct the capture of post-larvae (with CRISP, 2007-08); Support the project of Coral reef Conservation of Rotuma (with CRISP, 2008); Workshop on reef fish management indicators and coral eco-system monitoring (with CRISP, 2008); Research on the health state of coral reefs within seven countries of the Western Pacific (with CRISP, 2008); Didactic movie to reiterate the capacity of local communities to monitor MPAs from LMMA network (with CRISP, 2008). Also additional Integrated Coastal Management activities, such as clean water initiatives on the Coral Coast.

d) Biology, Chemistry, Mathematics, Physics

Activities:

Insect inventories with Dept of Forests; Viwa Island rat, cat, dog, cane toad eradication
Molecular phylogenetics of plants; PACINET (Pacific Taxonomy network); Pacific Asia Biodiversity Transect (PABITRA) – monitoring of Sovi Basin (with SBWG); Sovi Basin conservation initiative (with CI and NTF).

More recently:

Studies have included water quality of the Sigatoka River catchment, sediment circulation and metal loading in the Rewa River estuary, biology of the Fiji Ground Frog, study of local populations of an invasive ant species, studies on biology and ecology of beetles, butterflies,

honey-eater birds, comparison of bird populations in degraded and pristine forest areas, study of persistent organic pollutants in freshwater and inshore marine edible molluscs, contamination levels in market fish and shellfish, an economic appraisal of Marine Protected Areas and vegetative propagation of sandalwood (*Santalum* species) and determination of *Santalum* hybrids.

2.11.4 STATUTORY BODY

1. National Trust of Fiji

Activities:

Biodiversity survey for Waisali Forest Reserve, 2004; PLA community resource management plan, Waisali village, 2005 ; Dry forest vegetation survey for Yaduataba, 2002; Population survey of crested iguanas on Yaduataba, 2003; Crested iguana surveys of Monu & Monuriki, 2003; Crested iguana distribution survey for Yasawas & Mamanuca islands, 1999-2000; Biodiversity survey, Gau Highlands, 2005; Survey of the red-throated lorikeet, Viti Levu, 2002; Bird survey, Solodamu, Kadavu, 2003; Coral reef surveys, Yadua and Yaduataba, 1998-2004 (with Greenforce); Survey for the presence of Fiji's crested iguana (*Brachylopus fasciatus*) on Macuata Island, Vunitogoloa, Ra Province, 2005; Community training on identification, catch and release for petrels, 2005

Community training. Predator identification and protection of petrel burrows, Gau Island, 2005; Community awareness program for the endangered Fiji Petrel, Gau Island, 2003-04; Specialist training for community representatives on petrel identification and conservation, 2004; Community-based weed eradication program, Yaduataba, 2004-06

More recently:

The National Trust maintains its care of the Sigatoka Sand Dune National Park and the Waisali Rainforest Reserve in Cakaudrove. It also has a Kadavu bird awareness project, the Kacau ni Gau awareness project and the Global Mangrove Information System (GLOMIS) project (which is funded by the International Tropical Timber Organisation).

2.11.5 COMMUNITY BASED ORGANISATIONS

1. Biasevu Tourism Committee

Community biodiversity conservation and ecotourism support project – forest ecosystems, Korolevu, 2006-07. Funded by UNDP-GEF

2. Cakaudrove Provincial Office

Integrated community coastal resource management project, 2006-07. Funded by UNDP-GEF

3. Driti Village Development Committee

Sustainable mangrove fisheries initiative as a component of coastal, marine and freshwater ecosystems, 2006-07. Funded by UNDP-GEF.

4. LajeRotuma Initiative

LajeRotuma is 'an initiative of Rotuman youth who desire to protect and conserve their island environment'. Endorsed by the Rotuma Island Council, the group has received funds to support coastal clean-ups and poster education programs in the schools have been granted by the International Ocean Institute-Pacific and the World Wide Fund for Nature. LajeRotuma has also been funded to carry out training workshops to support sustainable resource use by the Rotuman community. The UNDP-GEF provided funding in 2006-07 to LajeRotuma for integrated community fisheries management, building community resilience to the adverse impacts of climate change, and a coastal rehabilitation program.

5. Naisaumua Mataqali Heads

Community Integrated Resource Management-Naisaumua Mataqali Heads, Naitasiri, 2006-07. Funded by UNDP-GEF

6. Natewa Yaubula Committee

Community Forests Conservation Programme - Natewa District, 2006-07. Funded by UNDP-GEF

7. Sovi Basin Working Group

This is a loose association of non-government organisations and government departments; mainly coordinated by the South Pacific Regional Herbarium at the USP.

Activities include:

Pacific-Asia Biodiversity Transect network (PABITRA) survey; Sovi Workshop - a direction forward, 2005 (with NTF, CI); Sovi boundary survey and plan, 2006; Vascular Plants and vegetation of Makaluva Reef Islet, Rewa Province, 2005 (part of PABITRA work) and undertaking follow-up PABITRA surveys; general biodiversity baseline data.

8. Tagituba Initiative – Community Biodiversity Conservation Initiative

Cakaudrove Province, Vanua Levu

Activities:

Coastal, marine and freshwater ecosystems, and forest ecosystems.

In 2006-07 and 2007-08, the Tagituba Initiative was funded by the UNDP-GEF to carry out two projects: (1) establishment and implementation of Forest, Land and Marine Conservation Management Plans for the Dogotuki Community coupled with the initiation of small community alternative livelihood activities for the communities of the Dogotuki Communities; and (2) Integrated coastal management. Extension and consolidation of Marine Resources management – North-eastern Macuata Province (Northern Udu Peninsula region).

The Initiative has also collaborated with the Society for the Conservation of Reef Fish Aggregations in conducting surveys and awareness raising.

9. Tikina Wai Environment Committee

Nahue-Community Conservation Programme, Nadroga, 2007-08. Funded by UNDP-GEF.

10. Vitokoni Ni Vuci Committee

Revitilisation of traditional Vuci ponds, Tailevu, 2006-07. Funded by UNDP-GEF.

11. Vusu Environment Committee

Komave compost toilets, Nadroga, 2005-06. Funded by UNDP-GEF

12. Wainimate

This is the Women's Association for Natural Medicinal Therapy. It is a women's non-governmental organisation registered as a Charitable Trust in Fiji, and its mission is to ensure the promotion, conservation and protection of safe and effective traditional knowledge and medicinal plant resources for women and their families, through training, awareness, demonstrations, consultations, networking and research. Wainimate was formed in 1992.

The group subsequently disbanded. It produced some publications on herbal remedies and medicinal plants.

2.11.6 BUSINESS/PRIVATE ORGANISATIONS

1. Clean Up Fiji

This is an informal organisation run by the Tebbutt Research Pty Ltd. Its main activity in Fiji is an annual 'Clean-up Day', conducted in about September each year. Funds for the clean-up are secured through sale of T-shirts and sponsorship by Tebbutt Research and other local business houses.

2. The Fiji Times newspaper (News Limited)

In June 2007 the Fiji Times launched its 'One Degree' climate change initiative nation-wide. 'One Degree' was launched as a nation-wide campaign to spread knowledge about how Fiji residents

can live more efficiently (saving money in the process) and more environmentally-friendly (saving the planet along the way). The campaign has been well-received by private companies and the public, its main public feature being a 'Cool Change' page in its daily newspaper which provides information on climate change and environment initiatives around the country.

3. Fiji Water Foundation

'FIJI Water' is the product and company name for a natural artesian water bottled at the source in Viti Levu; it is the second largest imported bottled water brand in the U.S.A. In January 2008 it announced a Sustainable Growth Initiative that is intended to make its products carbon negative. Conservation International (CI) (see above) has partnered with FIJI Water to counsel them on their sustainability initiative and to develop an ambitious multi-benefit carbon offset plan that, in addition to reducing CO₂ in the atmosphere, will also benefit Fiji's local communities and its biodiversity – the protection and permanent preservation of the largest remaining area of pristine rainforest in Fiji, the Sovi Basin, so that it will not be logged.

The Sovi Basin covers over 50,000 acres of land and is the largest remaining lowland rainforest in Fiji. The FIJI Water Foundation will provide funding to endow a Sovi Basin trust fund. As part of this conservation effort, CI's Global Conservation Fund will also donate funding toward the trust fund. Revenues from the fund will support the annual management costs of Sovi Basin, compensate communities for revenue that could have been generated from logging, and cover the annual lease payments to the Sovi Basin landowners. The revenues will also fund a small grants facility that will support community development activities. The National Trust of Fiji is responsible for management of the Sovi Basin, and will receive and administer revenues from the fund. This ambitious effort to preserve the Fijian rainforest will ensure that about ten million tons of CO₂ stored in the forest will remain out of the atmosphere in perpetuity.

In addition, the FIJI Water Foundation is funding the study and protection of the Yaqara Valley watershed, home to FIJI Water source.

4. Green Steps

The main activity of this informal organisation is its clean-up campaign ('COFFEE – the Cleaning Of Fiji For Everyone's Enjoyment'). Green Steps commenced January 2008 and its activities are supported mainly by businesses in the Suva area, the region in which it currently operates.

5. Pacific Green Industries (Fiji) Limited

This company is based near Sigatoka. Its specialty is manufacture of furniture from old coconut palms. The palms are secured from all around Fiji and dried in kilns at the premises. Wood waste from processing is used as fuel for the kilns; the leather finishes to the furniture are made in China. Pacific Green is 'committed to promoting Palmwood as an ecologically sound substitute for Fiji's endangered hardwood'.

6. Rivers Fiji

This company has been operating from Pacific Harbour on Viti Levu since about 1998. Its mission is to 'enhance visitors and indigenous peoples' awareness of, and appreciation for the culture and environment by providing activities that promote conservation and preservation through socially responsible and environmentally sensitive interaction with the people, landscape and ecosystems which make the Fijian Highlands so distinct and unique. By paying user fees to native land owners also, the company encourages support for sustainable tourism products by protecting pristine landscapes and waterways.

7. VODAFONE ATH Fiji Foundation

The Vodafone ATH Fiji Foundation was established in March 2004 as a charitable trust to enable our businesses and our people to invest some of our profits and Passion for the World Around Us back into the communities and the environment in which we live and work. It is funded by annual donations from Amalgamated Telecom Holdings Limited (ATH), Vodafone Fiji Limited and the

Vodafone Group Foundation of the United Kingdom. Vodafone partners with credible not-for-profits and NGOs, funding projects that will benefit and enable the people and communities of Fiji to have fuller lives. Some of these partnerships have been directed at environment awareness-raising.

2.12 Relevant Pacific programmes ¹⁴

These include:

51. **The Pacific Plan.** In 2004 there was consensus to strengthen regional cooperation and integration amongst Pacific islands countries. This became manifest through the Auckland Declaration of April 2004 where Pacific Forum leaders agreed to the development of a 'Pacific Plan' with the goal to "*Enhance and stimulate economic growth, sustainable development, good governance and security for Pacific countries through regionalism.*" Whilst management of the natural environment or biodiversity conservation are not central themes of the Pacific Plan, there is overt reference to '*Improved Natural Resource Management and Environmental Management*' in the plan's Strategic Objective no. 5, with initiatives being promoted for the first three years in sustainable development, fisheries, forestry, coastal waters, waste management, energy, freshwater management, biodiversity and climate change.

52. **Action strategy for Nature Conservation in the Pacific Islands Region.** This was developed by the Roundtable for Nature Conservation as a result of the 7th Conference on Nature Conservation & Protected Areas, held in 2002. Its mission is to '*protect and conserve the rich natural and cultural heritage of the Pacific islands forever for the benefit of the people of the Pacific and the world.*' It builds upon the three pillars of sustainable development (environment, society and economy) and aims to provide guidance to a wide range of actors in the Pacific community, including governments, in the development of their plans and programmes for nature conservation.

53. **Pacific Island Roundtable for Nature Conservation.** This is the Pacific's largest cross-sectoral coalition of conservation organisations and donor agencies, created to increase effective conservation action in the region. This Roundtable was formed in 1997 on request from Pacific island countries and territories for stronger collaboration and coordination of conservation initiatives. Its membership includes regional and national NGOs, regional and international inter-governmental agencies, public and private donors, and national agencies leading or coordinating multi-country efforts or working on issues of regional significance. The Roundtable serves as the coordination mechanism for the implementation of the Action Strategy for Nature Conservation in the Pacific Island Region; it facilitates 'working groups' on key issues and is a forum for stakeholders to come together to discuss and develop new ways to address the main issues of nature conservation facing the Pacific Islands. The Roundtable met in Alotau, Papua New Guinea in 2007, and most recently (June 2008) in Suva, Fiji.

54. The **Island Biodiversity Programme of Work (PoW)** is a set of priority and supporting actions aimed at implementing the objectives of the CBD in islands. It was adopted at the Eighth Conference of the Parties (COP8) in Brazil in March 2006. The Island Biodiversity PoW has seven main focal areas, eleven goals and 22 targets. The focal areas, unique to the island PoW, are¹⁵:

- protect the components of biodiversity
- promote sustainable use
- address threats to biodiversity
- maintain goods and services from biodiversity to support human well-being

¹⁴ Carter, E. (2007). *National biodiversity strategies and action plans. Pacific regional review.*

Commonwealth Secretariat and South Pacific Regional Environment Programme (SPREP), October 2007.

¹⁵ Roundtable for Nature Conservation. 2007. *Action strategy for nature conservation and protected areas in the Pacific Island region 2008-2012. Empowering local people, communities and Pacific institutions.* DRAFT.

- protect traditional knowledge and practices
- ensure the fair and equitable sharing of benefits arising out of the use of genetic resources, and
- ensure provision of adequate resources.

55. Fiji is a part of this programme through its connection with SPREP.

56. **Addition regional initiatives** relevant to the conservation and sustainable use of biodiversity include programmes identified in the UNCBD Stocktake report for Fiji (Pacific Invasive Initiative (PII), Pacific Invasive Learning Network (PILN), Coral Reefs Initiative for the Pacific (CRISP), Locally Managed Marine Areas initiative (LMMA), IUCN, WWF South Pacific Programme, Birdlife International Pacific Programme, Conservation International Pacific programmes)), the Pacific Biodiversity Information Forum (PBIF) and the UNESCO 'Man in the Biosphere' programme.

2.13 International conventions

57. The CBD Stocktake report¹⁶ identified that Fiji has signed up to 16 international conventions relating to the environment and biodiversity conservation; but subsequent searching has revealed that **Fiji has signed up to 37 conventions** (Appendix Five). Fiji also has signed various conventions and protocols relating to shipping, e.g. Convention on the International Maritime Organization (1958)¹⁷

58. In some cases, **Fiji has signed but not implemented conventions; very often** (and see above) **it is late meeting its obligations** (e.g. timely reporting¹⁸) **and in some cases its lapsed reporting resulted in censure** (the Vienna Convention – protection of the ozone layer) **or trade restriction** (CITES – 2007). **For some conventions, Fiji has yet to implement requirements** (e.g. obligations to adequately conserve representative ecosystems under the Convention on the Conservation of Nature in the South Pacific (Apia Convention) that Fiji ratified in 1989). **And Fiji sometimes fails to attend** principle CBD or related international environment **meetings**, even those that are funded from outside.¹⁹

59. In addition, some conventions to which it would be to Fiji's advantage to be a signatory, have not been signed. They include the

- Convention on the Conservation of Migratory species of Wild Animals (whales and dolphins, sea birds) (1979),
- Washington Declaration on Protection of the Marine Environment from Land-based Activities (1995),
- International Convention on the Regulation of Whaling (1946),
- the International Convention on Oil Spill Preparedness, Response and Cooperation (OPRC Convention) (1990), and
- the International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004).

60. Constraints

- Administration of commitments under international agreements. The proliferation of international agreements has greatly increased the demands placed on the administrative machinery of the government, and some demands are highly technical in nature, e.g. the

¹⁶ See also: <http://www.unescap.org/>

¹⁷ See: http://www.imo.org/conventions/mainframe.asp?topic_id=771 – accessed September 2008

¹⁸ For example, Fiji signed the CITES Convention in 1997. **Obligations under the convention include annual reporting and two-yearly (biennial) reporting; but Fiji has only submitted annual reports in 2002, 2004, 2005 and 2006, and has never submitted a biennial report** (source: <http://www.cites.org>).

¹⁹ Pers. comm. Greenpeace, June 2008

World Trade Organisation phytosanitary provisions and the CITES that require scientific justification for quarantine measures.

- There is lack of coordination in the Department of Environment (and perhaps the Office of National Planning and the Department of Foreign Affairs – but surely these latter are dependent on advice from the Department of Environment?) and lack of resources available to the Department to undertake timely reporting.
- Knowledge of what international conventions and treaties Fiji has signed, and sequence of related fora, is not centralised – it is dispersed among government departments where frequently it is held by one individual (who may retire, or move elsewhere)²⁰.
- There is not much coordination of and responsibility for Fiji's international environment treaty obligations. Because of these failings, Fiji's status collapses internationally.

2.14 MDGs and Strategic Development Goals

61. Appendix Three presents Fiji's environment statement (Goal 7) in the **2004 Millennium Development Goals** (MDG) report. Four years later, the situation is approximately as follows²¹:

Item 25, proportion of land area covered by forest. The area has increased (from the year 2000 estimate of 44.6%) to 57%, but this increase is from plantation forest, not native forest²².

Item 26, ratio of land area protected to maintain biological diversity to surface area. Fourteen areas of various legal status are identified in the 2004 report. The number has increased (see discussion, Appendix 7, Article 8 (i)) but the legal status of most of these 'protected' areas remains unestablished.

Item 27, energy use. No information (fuel prices have increased along with global price increases. Increased use of wood for domestic cooking).

Item 28, carbon dioxide emissions. No information.

Item 29, proportion of population using solid fuels. No figures, but use in urban areas surely has increased since 1990 figure of 30% (see Item 27).

Item 30, proportion of the population with sustainable access to an improved water source. As identified in the 2004 MDG report, increasing urbanisation of Fiji's population has put considerable pressure on infrastructure and that trend has continued over the past few years – especially with the non-renewal of sugarcane farm leases. Access to improved water sources has been particularly difficult in urban centres such as Suva, Labasa, Lautoka and Nadi, and lack of attention to infrastructure maintenance by successive governments in the past 20 years finally is being demonstrated.

Item 31, proportion of the population with access to improved sanitation. Sporadic outbreaks of typhoid in Vanua Levu led to an improvement in this area during 2007 and 2008. Some NGOs have also assisted in improving sanitation in rural areas (especially coastal communities) and the government is active also in improving sanitation (and other services) in inland rural areas.

Item 32, proportion of people with access to secure tenure. Fiji's situation was described in the 2004 report. With an increase in the proportion of the population living in poverty, tenure access has almost certainly deteriorated.

65. Appendix Four presents Fiji's environment statements in recent Strategic Development Plans.

²⁰ The Department of Foreign Affairs' Political and Treaties Division, is attempting to collate information on all international conventions to which Fiji is a signatory – estimated to be about 300. Pers. comm. Murray Isimeli, Political & Treaties Division, Department of Foreign Affairs.

²¹ The Bureau of Statistics has not yet released information from the national census conducted in 2007.

²² Pers. comm., Samuela Lagitaki, Department of Forestry

2003-05 Strategic Development Plan, prepared 2002

Policy objectives	Key performance indicators	Actual performance (2008)
To minimize degradation of natural resources and protect biodiversity.	<ol style="list-style-type: none"> 1 Sustainable Development Bill enacted and implemented <u>by 2004</u>. 2 Marine Prevention Pollution Bill by enacted and implemented <u>by 2004</u>. 3 Fiji Biodiversity Strategy Action Plan endorsed and implemented <u>by 2003</u>. 4 National Implementation Strategy and First National Communication to the Framework Convention on Climate Change endorsed <u>by 2003</u>. 5 National controls on coral harvesting <u>by 2003</u>. 6, Mangrove Management Plan reviewed <u>by 2003</u>. 7 2 nature parks and walkways <u>by 2004</u>. 8 2 marine parks <u>by 2004</u>. 	<ol style="list-style-type: none"> 1. Environmental Management Act instead, 2005; Regulations 2008 2. No – still a Bill. 3. No – finalised and published in 2007; partly implemented. 4.? 5. Some controls (quotas) implemented end of 2004; some communities also place voluntary controls. 6. No – remains static since 1986-87. No action. 7. No 8. More than 200 marine protected areas (community managed); see also Appendix Eight. No official marine parks however.
To maintain a healthy and clean environment through the reduction and elimination of pollution and proper management of wastes.	<ol style="list-style-type: none"> 1 National Analytical Laboratory established <u>by 2003</u>. 2 No litter due to enforcement of Litter Decree <u>by 2003</u>. 3 Vehicle emission levels reduced by 50 percent <u>by 2005</u>. 4 Alternative bio fuel identified <u>by 2005</u>. 5 Total suspended particles level in atmosphere to be below 60-90ug cubic metres <u>by 2004</u>. 6 Naboro waste disposal facility commissioned <u>by 2003</u>. 7. Use of adulterated fuel banned <u>by 2004</u>. 	<ol style="list-style-type: none"> 1. No – not yet even planned 2. Much litter. Litter decree of 2003 replaced by decree of 2008; enforcement (resources) a huge stumbling block, also public awareness campaign mediocre. 3. Probably not – vehicle emissions monitored. 4. No – current talk of ethanol production from cassava. 5. No information. 6. Commissioned in late 2006. 7. No. (no action)
To raise awareness of the importance of sustainable development	<ol style="list-style-type: none"> 1 National accounts framework that takes account of natural resource depletion and environmental degradation established <u>by 2004</u>. 2, Public awareness programmes on the Sustainable Development Act conducted. 3. Improved coverage of environmental issues in school curriculum <u>by 2004</u>. 	<ol style="list-style-type: none"> 1. No – still not established 2. Some media coverage of EMA 2005. 3. No (only from USP and NGOs)

Policy objectives	Key performance indicators	Actual performance (2008)
Initiate environmental audit in organisations' operations.	1.Environmental audit in public organisations to begin <u>by 2004</u> .	1. None performed (yet).

66. General.

1. Commitment: 'Adequate enforcement of legislation and increased public awareness and appropriate actions and activities aimed at changing people's attitudes will be emphasized'. Response: spasmodic and largely ineffective because of limited (human and financial) resources.
2. Commitment: Fiji's environment problems are noted and Sustainable Development Bill identified as a solution. Response: its replacement (EMA, 2005-08) is largely ineffective because of limited resources; regarding EIA requirement, policing will not be fully implemented (depending on resources!) until 2009.
3. Commitment: Being signatory to various international conventions places responsibility on government and also enables projects and programmes. Response: Department has difficulty keeping abreast of obligations attendant to those conventions due to lack of resources largely inhibits implementation.

Strategic Development Plan 2007-2011, prepared 2006

67. General.

1. Commitment: Acknowledgement that addressing the variety of environmental issues is a challenge to government. Emphasis is on coastal zones that have received the brunt of development, urbanisation, pollution and resource exploitation. Response: SDP admits that "absence of consistent monitoring of development within coastal zone development makes it difficult to assess the extent and seriousness of damage and degradation in coastal zones of Fiji".
2. Commitment: Department of Environment, in collaboration with other agencies, has implemented various programmes to address environmental issues. Promises that implementation of various legislation and programmes (lists seven) 'will provide a framework for sustainable management of land and water resources'. Response: three of the legislation pieces remain as drafts, Fiji's NBSAP is only partially implemented (see below), Endangered and Protected Species Act is not targeted at and does not address national species protection, and the EMA and Litter Acts have yet to be proven.
3. Commitment: Key features of the EMA 2005 are identified. Response: little capacity to enforce requirements; proscribed inventory, management plan, national environment report and environment strategy remain hypothetical as not formulated.
4. Commitment: Promotion of Fiji's NBSAP. Department of Environment promotes implementation, and also advises that it is conducting research to identify areas of high biodiversity and sustainable productive areas. It states that it is involved in creation of marine protected areas, and notably that those in Kadavu will convert to marine parks. Response: implementation largely has been through the diligence and commitment of NGOs and FLMMA however the Department of Environment due to its lack of capacity has not fully coordinated the implementation of NBSAP. Additionally, the marine protected areas were created by communities (through FLMMA) and there is no obligation for these to be converted to marine parks.
5. Commitment: Solid and liquid waste management and the International Waters Programme (IWP). The Department says that it has a research programme and an economic evaluation of the programme, and is working in the Walea Settlement. Response: the IWP has spent thousands of dollars in Fiji on its programmes. After they ceased, there was little follow-up.
6. Commitment: Implementation of ODS, and Fiji's methyl bromide phase-out programme. Response: Fiji was reprimanded by the Montreal Protocol for non-compliance in 2003 and 2004 thus the UNEP CAP assist Fiji for prepare a plan of action for Fiji to return to compliance.
7. Intention: The Department of Environment 'hopes' that the EMA and allocation of adequate resources will 'assist in addressing some of the (severe environmental) issues' affecting Fiji's environment. Response: effect of the EMA (still not fully implemented) is minimal, and resources not adequate.

8. Commitment: Accredited laboratory desired to 'enable better environmental monitoring and enforcement'. Response: The Department's desire for an accredited government laboratory is misplaced (a 'red herring') as it is a minor issue, the IAS laboratory adequately fulfilling Fiji's needs for monitoring.

Sustainable Economic and Empowerment Development Strategy 2008-10, prepared 2007

General.

68. Although prepared one year later, this Plan is almost a direct copy of the 2007-11 Plan (and no changes in progress were demonstrated either).

Conclusion

69. Concerning the MDGs, Fiji's standing has dropped since 2004. Some of this slippage is attributed to government inactivity and some to a slipping economy and non-renewal of land leases. The current government is charged with halting this slide and rehabilitating infrastructure and services to its people. Even the only 'positive' (increased forest cover) really is not positive, as it is based on exotic tree planting.

70. **The inability of the Department of Environment to meet its own goals in successive Strategic Development Plans** testifies the lack of capacity and the need to:

- (a) properly prioritize,
- (b) there are inadequate resources
- (c) they are mandated with more responsibilities than it can administer. This latter reflects the Department's capacity need for a dedicated Liaison Officer for effective communication with other stakeholders, the lack of capacity to delegate and strategise and lack of time and project management. Simply, the Department may not be able to fully carry out its responsibilities due to the above.

3 Implementation of the National Biodiversity Strategy and Action Plan

3.1 NBSAP committees

71. After taking on responsibility for preparation of the NBSAP, Fiji's Department of Environment invited a broad spectrum of Government and Non-Government (NGO) agencies to sit on a Steering Committee which had overall responsibility for the preparation of the NBSAP. The Steering Committee comprised 28 representatives: nine Governments, four statutory bodies, eight NGOs, five Universities of the South Pacific (USP), the UNDP and a consultant.

72. The Steering Committee met regularly each month from December 1997 until 1999 when the strategy was drafted; the NBSAP report was endorsed by Cabinet in 2003, and reviewed in 2003 and 2006.²³ Extensive consultation and wide capacity raising efforts were carried out in order to prepare the NBSAP, including the setting up of six technical groups (on marine biodiversity, terrestrial vertebrates and invertebrates, botanical biodiversity, traditional resource use and conservation practices, value and economic benefits of biodiversity, priority protected areas site selection).

73. In 2006 the Steering Committee met to support the collation of all relevant completed environment and conservation work performed by NGOs and other sources; the information

²³ Clarification of the NBSAP consultation timetable was provided by Mr Robin Yarrow, consultant.

gathered forms Attachment 6 of the published NBSAP. The NBSAP was published in September 2007.

74. In Chapter 5 of the NBSAP, 'Action Implementation Framework', recommendation is made for the establishment of a '**Biodiversity Steering Committee**' to be chaired by the Department of Environment, and a '**Scientific Advisory Committee**' to advise the government and Biodiversity Steering Committee by acting as the forerunner of the CITES Convention Scientific Advisory Committee. The principal functions of the Scientific Advisory Committee are also identified²⁴. The 'Action Implementation Framework' also outlines the related roles of some stakeholders, discusses a funding vehicle, and a monitoring and implementation plan. A large tabular summary of the actions and implementation framework is presented (Appendix Six). The Department of Environment states that the Biodiversity Steering Committee was established and that its membership comprises the 51 stakeholders that attended the launch of the NBSAP in September 2007²⁵; this Committee has not met since the NBSAP launch. Meanwhile, the **Scientific Advisory Committee has never been convened, a funding vehicle has not been established** (available GEF funding cycles are independent of such a vehicle), **and a monitoring framework has not been set up**.

3.2 Review of the Implementation of the NBSAP Action Plan

75. Appendix Six, parts a) to f) comprise a summary of the status of NBSAP. Points to note on these parts are:

- the nominated lead organisations and nominated support organisations were identified when Chapter 5 of the NBSAP was compiled – perhaps before 2003 (see above);
- the organisation(s) that actually carried out some of the work rarely correspond with the nominated organisation(s);
- several actions identified as 'high priority' have not been attempted – at least in the past five years;
- among the actions carried out, there is an emphasis on Focus 1 (community support), Focus 2 (improving knowledge) and Focus 4 (species conservation), although often certain actions are targeted above others;
- whereas in the NBSAP Action Plan the nominated support organisations usually comprised a mixture of government and non-government, the actual implementing organisations were almost exclusively non-government (NGO);
- the nominated lead organisation was almost exclusively a government body; and
- whether the Department of Environment was updated on actions by NGOs (verbally or in report form) is unknown.²⁶

76. Constraints²⁷

²⁴ NBSAP, p 41.

²⁵ Ministry of Tourism and Environment. (2007) Annex 4, in *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

²⁶ The senior environmental scientist at the Department passed away in mid-2008. The process of sorting his files continues. On the other side of the coin, implementing organisations have not clearly identified to me whether they actually report to the Department – verbally or in writing. The Department has a short list (less than ten) of reports 'submitted under the CBD' but they are dated in the 1990s; most referring to forestry.

²⁷ Including those from A. Chandra, Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

- the cost-effectiveness of the NBSAP (costing more than \$1.6 million; Appendix Ten) depends on government;
- the NBSAP does not clearly identify the opportunities and challenges;
- the NBSAP does not identify the threats to resource sustainability;
- questionable sustainability of projects. Because access to donor funding can be very competitive, funds may not be available for some projects. Moreover, a large percentage of existing funding is used for staff salary and project completion (i.e. funds may not be used for the identified, initial purpose) (see: 5.3, Funding).

77. Carter (2007)²⁸ and Fiji's NBSAP itself identify some of the shortfalls in implementing the NBSAP Action Plan. **'The current administrative framework for biodiversity conservation in Fiji is poorly developed with ill-defined responsibilities, a lack of capacity and severe funding constraints.'** ... 'In the absence of an administrative structure, the current ill-defined responsibilities will prevail and it will be very difficult to provide effective leadership and co-ordination in the implementation of the Strategy.'²⁹ The NBSAP resolves that these issues can be assuaged by establishment of a 16-member Biodiversity Steering Committee to be chaired by the Department of Environment, but that committee's life (as understood by the Department of Environment) was short-lived (and see paragraph 53).

78. The relative failure of Fiji's NBSAP is due also to incomplete adherence to the six key elements of a strategy: **what** does nation X want to do; **where** will it do it; by **when** should it be done; **who** is going to be responsible for it and be involved in its development; **why** do you want to do it; and **how** is it going to be done and how will nation X know when it has been successful?

79. Fiji's NBSAP identifies the 'What' and 'Where' but fails to identify the 'When': a timeframe was not set, although a priority ranking was given to planned actions. The 'Who' lead agency and supporting agencies were identified against each action but the lead agency responsible for overall NBSAP implementation was only recommended – not clearly identified. Whereas the 'Why' was clearly identified (justified) the 'How' – implementing the actions since NBSAP production – was not identified. So from a project implementation point of view, the Fiji NBSAP strategy is missing two strategies (When, How) and unclear on a third (Who).

80. The lack of a clear strategy in the NBSAP is not its only impediment. Others include

- the non-establishment of the identified Biodiversity Steering Committee,
- the non-establishment of the Scientific Advisory Committee;
- non-participation by 'Fijian administration' authorities in NBSAP activities;
- lack of funding, specifically the establishment of a Biodiversity Conservation Trust Fund (NBSAP pp 43-47); and
- the non-establishment of a 'Fiji biodiversity database'.

81. The setting of **targets and indicators** are very useful tools in monitoring and evaluating both the implementation of NBSAPs and the success of activities undertaken in biodiversity conservation³⁰. Unfortunately, **Fiji's NBSAP has neither measurable targets** (except loose and large ones, such as 'protected areas') **nor indicators; there are no monitoring and evaluation plans.**

²⁸ Carter, E. (2007). *National biodiversity strategies and action plans. Pacific regional review.* Commonwealth Secretariat and South Pacific Regional Environment Programme (SPREP), October 2007.

²⁹ Page 40, Fiji NBSAP

³⁰ A TARGET is: 'The desired outcome/results to be achieved within a specific timeframe. These should be measurable and achievable', while an INDICATOR tells you: 'How you know when your action has been successfully implemented'.

82. Carter³¹ identified the challenges and serious obstacles faced by Fiji in implementing its NBSAP:

83. **Challenges** (these are not critical):

- Lack of accessible knowledge/information (*such as a lack of scientific and traditional knowledge on status of biodiversity*);
- Lack of collaboration/cooperation between partners and stakeholders;
- Socio-economic obstacles (*such as poverty, lack of community capacity, unsustainable utilization rates*).

84. Interestingly, she did not identify legal/judicial challenges (*such as a lack of appropriate policies and laws*) as a challenge (and see below, 4.4).

85. **Obstacles** (these are serious):

- Political/societal obstacles (*such as lack of political will, political instability, or difficulties mainstreaming NBSAP into other government sectors*) (Fiji is one of two Pacific countries out of nine where this is an obstacle);
- Institutional, technical and capacity related obstacles (*such as lack of human resources, inadequate capacity, lack of technology transfer*);
- Economic and financial obstacles (*such as lack of financing*).

86. These items are explored further in Section 5 below, as well as additional matters. Carter (2007)³² has an excellent section later in her report that addresses this matter.

87. Fiji did review its NBSAP in 2006 but this was more a result of time since it was first drafted (1999), its acceptance by Cabinet (2003), and its publication (2007).

3.3 Status of high priority and priority projects

88. Appendix Six, parts a) to f) comprise a summary of the status of the entire NBSAP Action Plan. Below are comments on the priority projects (various sources).

89. **A.** On pages 72 to 85 of Fiji's NBSAP **eight project briefs** are described, and costed. I am informed that none of these projects have been carried out fully, although some have been completed in part: for example, discussions on sites of national significance (project 1) are frequent; the SPRH remains involved in project 5; projects 6 and 7 are addressed by SPRH, the SPC and the USP Department of Geography as resources become available. The projects are:

Project Profile 1: 'Drugs from the Deep' – natural products development and conservation in Tikina Verata, Fiji.

Project Profile 2: *Acmopyle sahniana* Fiji's rarest tree

Project Profile 3: Yaduataba – home of the crested iguana

Project Profile 4: Sigatoka Sand Dunes. Nadroga

Project Profile 5 : Koroyanitu National Heritage Park

Project Brief 1: Development of sites of national significance system

Project Brief 2: Biodiversity conservation initiatives in Fijian villages

³¹ Carter, E. (2007). *National biodiversity strategies and action plans. Pacific regional review.*

Commonwealth Secretariat and South Pacific Regional Environment Programme (SPREP), October 2007.

³² Carter, E. (2007). *National biodiversity strategies and action plans. Pacific regional review.*

Commonwealth Secretariat and South Pacific Regional Environment Programme (SPREP), October 2007.

- Project Brief 3: Establishment of a biodiversity management information system
 Project Brief 4: saving the plants that save lives: traditional medicine plant conservation
 Project Brief 5: Crop germplasm, economic plants and weeds collection
 Project Brief 6: Study of Fiji's invasive species and the development of a draft Fiji 'Alien species action plan'.
 Project Brief 7: Impact of invasive species on native terrestrial ecosystems
 Project Brief 8: Bibliography and checklist of Fijian flora and fauna

90. The Department of Environment reports that it plays the role of advising on project implementation and establishing Memoranda of Understanding (terms of reference and work programme in the country). For example, the department has facilitated the Sigatoka Sand Dunes project (Project Profile 4) with the National Trust – this and other projects are reflected in the National Environment Strategy (1993).

Project	Other information
1. Development of sites of national significance	Three-year project; Fiji Government [Sites of National Significance]
2. Biodiversity conservation initiatives in Fijian villages	Three-year project; Fiji Government (e.g. FAB)
3. Establishment of a biodiversity management information system	Various stakeholders; three-five years; DoE as implementing agency
4. Traditional medicine plant conservation	Wainimate as implementing agency ³³ ; two years
5. Crop germplasm, economic plants and weeds collection	Association of the Agriculture Department's herbarium and the South Pacific Regional Herbarium.
6. Study of Fiji's invasive species and the development of a draft Fiji 'Alien species action plan'	Association of the Agriculture Department's herbarium, the South Pacific Regional Herbarium, and the SPC Plant Protection Section.
7. Impact of invasive species on native terrestrial ecosystems	Various stakeholders.
8. Bibliography and checklist of Fijian flora and fauna	Some of this has been completed, e.g. national arthropod survey by WCS and the Bishop Museum in Hawaii, palms of Fiji, draft freshwater fish checklist (WI-O), terrestrial molluscs, benthic marine algae checklist, lists of corals, other insect groups, and mangroves.

91. **B.** The DoE has a list of NBSAP 'Initiatives to Solve'. They and their status (as of September 2008) are:

Initiative	Status
Genetic conservation of biodiversity	'yet to be addressed'
Coral reef issues	'ongoing – 1 st priority'
Indigenous timber species (refer to Heritage Trees Report)	no comment
Endangered fish species e.g. humphead wrasse	'ongoing – 1 st priority'
Invasive marine and terrestrial species	no comment

³³ Wainimate was an association of herbal healers – mainly women – who know the healing properties of endemic and native plants. The association was one of those involved in preparing the NBSAP but has since dissolved.

92. **C.** On the occasion of the launch of Fiji's NBSAP³⁴, the Biodiversity NGOs/Stakeholder Consultation Forum resolved to

1. endorse the concept paper for Fiji Global Environment Facility (GEF) biodiversity funding,
2. develop a strategy to enforce and monitor fisheries and forests regulations,
3. review memoranda of actions (MOAs), memoranda of understandings (MOUs) and Government's engagement with NGOs and the commercial sectors,
4. review the National Biodiversity Strategy and Action Plan (NBSAP) and develop a priority national implementation plan in the next 12 months,
5. initiate economic consideration of the benefits of the NBSAP and involve the commercial sectors,
6. engage non-environment NGOs, including faith-based groups and the health sector, in biodiversity awareness,
7. add agriculture biodiversity as a critical aspect of the NBSAP,
8. have key documents to be translated into vernacular, including the NBSAP, starting with the executive summaries (engage Ministry of Fijian Affairs, Culture & Heritage in policy),
9. develop a Communications Strategy (awareness and media campaigning) on the NBSAP (could also be part of the MOA/MOUs) (preceding announcement of the NBSAP; concise summary of the NBSAP),
10. relevant sectors to be coordinated by the Department of Environment to develop community based participatory, low-cost models for land use/terrestrial biodiversity planning,
11. encourage the strengthening of environment units in relevant government sectors,
12. review and update the Green Book of Fiji³⁵, and
13. seek assistance as appropriate from international bodies and national planning process to implement the NBSAP.

93. As far as I can ascertain, none of these resolutions has been comprehensively activated, but some may have/have been carried out piece-meal by NGOs and some government bodies. For example, through facilitation of UNDP and the FAO the biodiversity funding available through GEF will become available, and the PILN has been supporting Focus Five (Management of Invasive Species) (Appendix Nine).

94. **D.** The status of priority projects identified as such in the NBSAP is outlined below (see Appendix Six for name of lead agency).

³⁴ Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

³⁵ Knox, Margaret (1978). *The green book for Fiji: A teachers' handbook on the conservation of nature in Fiji*. National Trust for Fiji. 326 p.

Identified priority action	Action	Mainly implemented by
1. Initiate a coordinated awareness, educational and training programme for landowning and Traditional Fishing Rights Owners (TFRO) emphasising the benefits of biodiversity conservation and its links with sustainable mgt of natural resources	Community based work done by FLMMA network; also isolated places like Kubulau and Waimanu; MPAs established in many FLMMA sites	DFI, IAS, NGOs
2. Encourage & assist landowners and TFRO to document their traditional biodiversity knowledge and its uses & develop their own strategies	Some wetland ecosystems in Fiji; marine protected areas; Kubulau marine area; traditional knowledge; FLMMA network assists many TFROs; Waimanu nature reserve	IAS, NGOs
6. Produce an 'Ecology of Fiji' for use at secondary and tertiary education levels	No action	No action
8. Develop & adopt guidelines or legislation for bioprospecting & economic use of genetic material & products which incorporate fair provision for traditional knowledge & ownership	No action. Fiji had draft legislation as part of sustainable development bill in the mid-1990s but this was not followed up. Since then the Agriculture and Fisheries departments have had <i>ad hoc</i> policies.	No action
12. Promote the sustainable management of indigenous forest, including mangroves	Considerable activity, particularly the Sovi Basin, Forest Policy, Fiji forestry certification, Drawa Forest, booklet & posters (sustainable forest management); Waisali Forest biodiversity survey; sustainable forest management awareness; volume increment & tree selection study; mangrove management plan; wetlands surveys; Nakavu Forest; economics of forests; also the forest at Koroyanitu on Viti Levu; other forests	NLTB, NT, IAS, NGOs, DFO
13. Enact regulations or codes of practice which ensure environmental impact assessments of new logging areas and plantation establishment sites	Environment Management Act (2005) and regulations (2008); Forest policy accepted by Cabinet; code of logging best practice developed; Fiji forest certification policy	DFO, SPC, GTZ, DoE
15. Encourage & support community-based natural forest restoration initiatives	Considerable activity in sustainable livelihood from several forests in Fiji – Sovi Basin, Waisali, Koroyanitu, Bouma, Kabara forests (vesi); forest inventory, management, certification, tree nurseries; community forest management; agroforestry; tree selection; volume increment study in rain forests; best practice draft code	DFO, GTZ, SPC, communities
18. Strengthen the capacity for strict enforcement of the National Code of Logging Practice & biodiversity conservation	Forest policy accepted by Cabinet 2007; Fiji forestry certification standard being addressed; Forest Decree to be reviewed	DFO, GTZ, SPC, communities

Identified priority action	Action	Mainly implemented by
21. Enact regulations to provide for consultations & majority agreement of traditional fishing rights communities prior to the issue of an IDA (Inside Demarcated Area) resource use license	Little and isolated, but FLMMA involved – no regulations yet	FLMMA network; DFI
22. Encourage & assist traditional fishing rights communities to actively manage their qoliqoli & to establish or reinforce protected areas, through appropriate traditional conservation measures	Marine protected areas tool kit; conservation & sustainable use of marine biodiversity; marine protected areas; Kubulau marine network; Vatu-i-Ra heritage seascape ecosystem approach; FLMMA very active here - >200 qoliqolis and MPAs managed by traditional and modern management methods; also individual community-based organisations do this	FLMMA, NGOs, DFI
23. Undertake a multisectoral collaborative awareness campaign on the consequences of wildfire amongst farmers & land-owning communities	No action	No action
31. Review the secondary school curricula & if necessary, modify relevant learning areas incorporating current knowledge of Fijian biodiversity & the value of traditional ethnobiological knowledge	No action	No action
32. Provide further professional development courses in biodiversity, ethnobiological knowledge & conservation for in-service teachers	awareness courses for teachers, mainly on water and waste management, but others also	Live & Learn Environmental Education
34. Undertake a comprehensive terrestrial & freshwater biodiversity resource inventory	Numerous activities – see Appendix 6(b) – but all performed as stand-alone studies	Many NGOs, gov't, NT, IAS
35. Undertake a comprehensive marine biodiversity resource inventory	Numerous activities – see Appendix 6(b) – but all performed as stand-alone studies	IAS, WI-O, WCS, MAFF, individuals, DoFI
39. Review Government's & USP's role in biodiversity research	No action	No action
42. Adopt a national protocol, drawing on the current USP guidelines for biodiversity research & bioprospecting regarding conduct & publication of research, & the export, buying & selling of biodiversity materials & findings	No action	No action

Identified priority action	Action	Mainly implemented by
43. Establish a central professionally administered facility to house & manage the various existing biodiversity collections & to actively encourage the collection & deposition of new materials	No action although under consideration	mainly IAS, USP, SPRH
44. Undertake comprehensive terrestrial, freshwater and marine biodiversity resource surveys of Rotuma	No action? (Some marine surveys conducted)	No action? (individuals; USP)
45. Establish the institutional & legislative framework for a core protected areas system in both the terrestrial & marine environments	Partly done only: Sovi Basin; Waimanu; Kubulau; considerable recent activity	(NLTB, communities); recent activity by NT and NGOs; NLTB?
46. Secure the priority/core sites through appropriate arrangements with the current landowners or TFROs	Partly done only: Sovi Basin; Waimanu; Kubulau; discussions ongoing	(NLTB, communities); recent activity by NT and NGOs; NLTB?
48. Establish a consensus on the administrative & institutional framework of the sites of national significance programme	Discussions ongoing	Various NGOs and Gov't stakeholders
49. Establish the institutional & enact the legislative requirements of the programme and register the sites	No action	No action
50. Establish institutional control & responsibility of existing protected areas under the Government designated institution	Discussions ongoing	Only DoFi (marine protected areas)
52. Prepare management plans for existing biodiversity protected areas, nature reserves and community-based eco-tourism sites	Management plans for Ravilevu Nature Reserve, Taveuni & Tomanivi Reserve, Ba; LMMAs; Kubulau marine reserve; Moturiki; LMMA protected areas	(individuals; marine aquarium council); communities, FLMMA, DoFi, NT, NGOs
54. Ensure that adequate scientific knowledge is entered into strategies & plans	Management plans in some reserves; not a lot – see Appendix 6(c)	DFI, BLI, Watling, FLMMA, WCS
56. Encourage & assist landowners and TFROs in the establishment of their own conservation areas irrespective of their national significance	> 200 marine protected areas; case study of Votua in Ba - empowering local communities	FLMMA, IAS, DoFi
58. Review and establish an appropriate funding mechanism(s) for the management of priority biodiversity protected areas	Sovi Basin; Bouma on Taveuni; Waimanu?; others being discussed	NLTB, (Maruia Society), CI, NT, FLMMA
59. Ensure meaningful participation and provide equitable incentives and remuneration to resource owners for protected area establishment and management	Sovi Basin; Bouma on Taveuni?; Waimanu?; others being discussed	NLTB, (Maruia Society), CI, NT, FLMMA
60. Review the status of threatened species and prioritize species for conservation initiatives	See Appendix 6(d) (mainly turtles, birds, some fish, reptiles); some recent work	NGOs, USP; NatureFiji active; others

Identified priority action	Action	Mainly implemented by
72. Improve regional collaboration between national quarantine services and relevant regional institutions / organisations to develop regional action plans and strategies for the prevention of introduction and spread of invasive species	inventorying of regional invasives; training in NZ & Australia; training on PACINET (an SPC-supported programme)	SPREP, PII, PILN, SPC
88. Appoint a focal point to be responsible for coordinating advice to Government on Biosafety issues and ensuring Fiji's participation in the current debate	Establishing a biosafety committee and database information; awareness activities planned	DoE
89. Adopt legislation to provide protected status for ALL native terrestrial bird, reptiles and amphibians with nominated exceptions (see footnote p 38 of NBSAP)	Endangered & Protected Species Act 2002 part covers this action but only for spp in international trade; NBSAP argues that all spp should be protected (footnote p 38 of NBSAP); birds protected under Bird & Game Act	DoE
90. Enact biodiversity conservation legislation based on the Sustainable Development Bill (1997-Part XVII)	Environment Management Act 2005 and Regulations 2008	DoE
91. Develop legislation for the preservation and maintenance of traditional knowledge, innovation and practices	No action	No action
92. Advocate that traditional knowledge be internationally recognized as a 'Sui Generis' system for intellectual property rights	No action	No action
97. Ensure tertiary scholarships are awarded by Government and attachments and collaboration are encouraged, to develop national expertise in biodiversity and bioresource research and management	Some independent action	USP
98. Review and implement appropriate partnerships with communities to enable them to attain sustainable community level resource management	marine protected areas (FLMMA); Kubulau marine reserve network; Gau Island, others	WCS, LMMA, DFI, other NGOs
99. Establish a funding mechanism to enable wide adoption of successful community-based sustainable resource-management initiatives	No action except for Sovi Basin initiative	CI, NT, NLTB, Fiji Water in Sovi Basin

3.4 Summary of constraints for the priority actions

95. Constraints to the implementation of the priority areas are identified under sections 4.2 and section 5, below.

96. However, they revolve around the **capacity gaps** in the Department of Environment, funding and resource constraints, lack of strategic planning by government and overlapping government responsibilities. Inability to communicate effectively with and between stakeholders is another constraint. **The NGOs have assisted greatly in the implementation of actions.** Lack of a holistic statement of Fiji's biodiversity and conservation needs are also demonstrated in the

failures to carry out these actions. However the Department has been instrumental in the formulation of NBSAP policy.

4 Review of Implementation of the CBD

4.1 Focal Point for the CBD

97. The Secretariat of the Convention on Biological Diversity (SCBD), based in Montreal, Canada, was established to support the goals of the Convention. Its primary functions are to organise meetings, prepare reports, assist member governments in the implementation of the various programmes of work, coordinate with other international organisations and collect and disseminate information.³⁶

98. Those functions are transferred, at a local level, to the national focal point for the CBD which in Fiji is the Department of Environment. The brief of the department pertaining to its duties as the focal point, and how the department carries out those duties, is described below. [See also paragraph 82).

- a. Brief: facilitate and coordinate meetings within the department and with relevant stakeholders.
Performance: This happens on an *ad hoc* basis. The meetings are minuted. The department's lack of resources inhibits its performance here.
- b. Brief: act as the Secretariat for the CBD.
Performance: Most agencies are aware that the department is the secretariat for the CBD. Other stakeholders (NGOs; line ministries) expect the department to know the ins-and-outs of the CBD processes but because of the lack of capacity within the department it could not fully perform the required work, and seeks guidance from UNDP which sometimes take longer process and sometimes may confuse local stakeholders keen to access available funds (for example).
- c. Brief: act as the national focal point for programmes under the CBD.
Performance: Most stakeholders are aware that the department is the national focal point of the CBD and that it sometimes represents Fiji in CBD-commissioned meetings. The utility of the department at those meetings would be enhanced however, if it either familiarized itself more with biodiversity conservation and natural resource issues in Fiji (forestry, fisheries and culture matters, for example) or invited the attendance at meetings by those line ministries.
Awareness by other stakeholders that the department is not familiar with (or unable to activate) programmes has led often to stakeholders ignoring the department.
- d) Brief: formulate policies as required under the obligations of the CBD.
Performance: The department has developed few policies relative to the CBD (refer Appendix Seven). It has participated in protected areas discussions (but did not initiate policies on them), and has developed some legislation (Article 8) – only to support export trade; also environmental impact assessment legislation under Article 14. A critical Article that the department could have worked on is policy on access and benefit sharing in relation to bio-prospecting, for example (Article 17; Article 8).

³⁶ For further information on the CBD Secretariat, consult <http://www.cbd.int/secretariat/role.shtml>

- e) Brief: oversee and participate in implementation of policies and programmes under the CBD.
Performance: The department because of its lack of capacity has had little active involvement in programmes under the CBD. It attends working group meetings (e.g. on protected areas) and is a member of committees managing conservation programmes (e.g. the Upper Navua Conservation Area Ramsar site; Sovi Basin conservation area). It may also attend, on an *ad hoc* basis, stakeholder meetings relevant to Article Seven and Article Eight, and it has carried out some public education and awareness training (Article 13).
- f) Brief: meet reporting requirements to the Secretariat of the CBD.
Performance: Due to the lack in capacity within the department it has barely met reporting requirements under the CBD (Section 2.2-2.4).
- g) Brief: facilitate access to funding for Fiji-based programmes under the CBD.
Performance: See comment under b).
- h) Brief: advise the national government on matters relating to biodiversity.
Performance: This is a two-way street – in the absence of the national government asking, the department does not offer. Perusal of Appendix Six (NBSAP activities), Appendix Seven (CBD activities) and the status of priority projects (paragraph 72) illustrate the department's lack of activity in biodiversity projects.

4.2 Relevant Articles of the CBD and responses

99. In this section, Fiji's responses to CBD articles are summarized. It appears as Appendix Seven.

100. During the course of interview and survey on this assignment, activities of many stakeholders not previously recorded were revealed. Many of these are mentioned or described in Appendix Seven; others are identified in the NCSA CBD Stakeholder Report.

101. Under some Articles (e.g. 7(iii)) expanded comment on some biodiversity situations is given. Another point is that very often programmes or projects are not devoted to one Article – although they may encompass several, they may only be mentioned under the one Article. Project information often is abbreviated in this section.

102. For various of the Articles, constraints are identified. Whereas some of the constraints are specific (e.g. for forestry and quarantine) the general flow of the constraints is comparable to those identified for institutions in Section 5 below. They include weak conservation strategy in Fiji, communication breakdown between stakeholders, old or no legislation, not enough implementation of existing legislation, less follow-up, very little training, career paths, awareness, and insufficient resources.

Summary

103. As with the NBSAP implementation, much of the activities under the various CBD Articles have been performed independently by local and regional NGOs, academic institutions, local statutory institutions. Some articles have not been, or are only partially, addressed. The departments of fisheries and forestry and the quarantine section of the Department of Agriculture have successfully completed several activities.

104. The Department of Environment has capacity gaps in its role as the focal point of the CBD however. Overall, its actions have been passive (reactive) rather than active (proactive) – limited liaison with stakeholders, missed reporting requirements, unable to oversee policies at some points, and imprecise in its reporting on biodiversity to the national government. Although its annual budget demonstrates that it accesses donor funding, those funds largely are used by the Department to either initiate new programmes or enhance the Department's capacity (Appendix Ten). Other available funds are taken up by the Department after being reminded by donors, NGOs and academic institutions (e.g. the substantial GEF 'Ridge to Reef' biodiversity project to commence more than 18 months later than originally planned).

4.3 Related Biodiversity Initiatives

A. The conservation, management and ethnobotany of Sago (*Metroxylon vitiense*) in south-eastern Viti Levu: a study by Isaac Rounds, Craig Morley and Randy Thaman (University of the South Pacific).³⁷

105. *Metroxylon vitiense* is an endemic palm listed as 'Vulnerable' by IUCN on its Red List. Once widespread on the main island of Viti Levu, it is now restricted to the south-eastern corner of the island. A study was conducted to determine the current distribution of *M. vitiense*, harvesting effects on population structure, and local use of *M. vitiense*, and develop a conservation management plan for its sustainable use. Field surveys were used to determine the current distribution of *M. vitiense* within its original range. Four populations were selected for the harvest impacts study and areas with different harvest intensities (high or low) were identified within each population. Fourteen sub-plots were placed in each population (seven each in high and low intensity areas). The height of all palms found was measured and each plant was classified into one of three categories: seedling, juvenile or adult, and a detailed questionnaire was used with the resource owners of each population to determine the extent of local use of *M. vitiense*. Results showed that average plant size was significantly smaller in high harvest areas mainly due to larger numbers of seedlings and juveniles. The density of palms (per 10 m²) was higher in low harvest areas than in high harvest areas. Seedlings were the most abundant age class in all sub-plots (54-86%), followed by juveniles (8-30%) and adults (1-25%). Questionnaires revealed that most *M. vitiense* are harvested for roof thatching and palm heart consumption. The current harvest rates of *M. vitiense* are unsustainable as there is no replanting. In addition, the harvesting of leaves opens up canopy gaps which facilitate the introduction of weeds such as *Mikania macrantha*, *Annona glabra* and *Merremia peltata*. Based on the survey results, *M. vitiense* should be reclassified as 'Endangered' under IUCN.

B. Fiji Locally Managed Marine Areas network (FLMMA)

106. The Locally Managed Marine Area (LMMA) undertakes community-based marine conservation with local practitioners. Through training and effective Participatory Learning and Activities programmes, the technical capacity of national conservation institutions is enhanced, technical capacity and resources of local conservation groups is built at all project sites, improved conservation and natural resource management plans are agreed upon by target communities, monitoring frameworks are created and used for indicators of threatened biodiversity, and public awareness is enhanced.

107. The FLMMA comprises a malleable network of organisations comprising government, communities, NGOs and Institutions. One of FLMMA's aims is to mainstream resource

³⁷ Paper presented at the Biodiversity Extinction Crisis Conference - A Pacific Response, University of New South Wales, Australia, July 2007. <http://www.biodiversity2007.com/abstract/9.htm>

management in Fiji. Largely through the industry of FLMMA, more than 200 MPAs or *tabu* sites have been established or identified along Fiji's coasts. A major outcome of the FLMMA programme is the empowerment of government extension officers (in fisheries and agriculture), village heads, and fish wardens.

C. Forest conservation in Fiji. The Vesi: a threatened species³⁸.

108. The native tree species vesi (*Inistia bijuga*) is seriously overexploited in many parts of Fiji, due to both the commercial timber and carving trade. Vesi is amongst the top ten priority species for immediate conservation and proper management due to its presence in ecologically sensitive ecosystems such as littoral forests and mangroves. The species faces the possibility of imminent disappearance as an economic and cultural plant resource due to factors which include unsustainable and poorly-planned logging and tree harvest, lack of awareness of the diverse value the tree provides, and the failure of recent generations to protect and facilitate the regeneration of native trees in comparison to an overemphasis on commercial exotics such as pine and mahogany. The species is classified as 'Vulnerable' to extinction on the IUCN Red List.

109. There heavy dependence of locals on vesi trees for the generation of income (96% dependence by the island's communities on vesi wood for carving) Kabara Island in the Lau Group and demand was leading to an unsustainable level of extraction. Alternative sources of income were poorly developed or not lucrative and the woodcarving effort by the community members did not match sale earnings attained in urban areas; this resulted in a cycle of rapid harvest to achieve higher earnings on the island. In addition, the biological assessment of existing stock on the island demonstrated the existing natural strand of vesi was limited to the centre of the island (8% of the islands total forested area), most areas being difficult to gain access to, harvested areas showed poor regeneration in sample plots and the standing stock suitable for future woodcarving activities was very limited suggesting a total collapse of the island's carving industry within the next 10 to 15 years.

110. WWF, in collaboration with the Department of Forestry, assisted the Kabara people in developing a community management plan for vesi and facilitating suitable conservation interventions such as replanting, seed banks, wood skills diversification, five community reserves and effective marketing of sustainable handicrafts. Before being able to achieve this, a series of activities

D. Frontier Fiji work on Gau Island, Lomaiviti Group

111. The Society for Environmental Exploration, under the banner name of 'Frontier', carries out field research and implements projects that will help conserve biodiversity and help develop sustainable livelihoods. In Fiji, the society is known as 'Frontier-Fiji'. Volunteers come throughout the year to assist in basic biodiversity studies on Gau Island.

112. Frontier-Fiji is a collaboration between the Society for Environmental Exploration and the International Ocean Institute - Pacific Islands. Frontier-Fiji focuses on the coastal and marine environments of Gau Island in the Lomaiviti island group, on which the local communities are heavily dependent and are overexploited. As part of Frontier Fiji conducts a biodiversity assessment of marine protected areas (MPAs) on Gau with the objective of recording marine resource use and conservation evaluation. Scientific baseline data surveys of reef areas, mapping the coral reef, sea grass beds and mangrove fringes of the region are conducted. A Marine Research Methodology Training Manual has been created and the island's conservation

³⁸ http://www.wwpacific.org.fj/where_we_work/fiji/forests.cfm - accessed June 2008

and biodiversity needs are being identified. Furthermore, islanders are trained in making informed decisions regarding ecosystem management by building awareness in schools and communities through environmental education and training.

E. NatureFiji-Mereqeti Viti

113. In contrast to many of its neighbours Fiji did not have a nature conservation or wildlife non-government organisation although many international NGOs have set up in Fiji. While Fiji benefits greatly from the presence of those NGOs, particularly in respect of employment opportunities and the resources they bring, there are some downsides including the lack of local NGO development, lack of local conservation management capacity development and the precedence of global as opposed to national or cultural concerns.

114. NatureFiji-MereqetiViti was established only recently; it is the working arm of the Fiji Nature Conservation Trust. It is Fiji's only domestic NGO working solely for the conservation and sustainable management of Fiji's unique natural heritage. Its mission is to enhance biodiversity and habitat conservation, endangered species protection and sustainable use of natural resources of the Fiji Islands through the promotion of collaborative conservation action, awareness raising, education, research and biodiversity information exchange³⁹. The NGO recognizes the key role to be played by Fiji's indigenous landowners, and NatureFiji-MereqetiViti intends to promote much better understanding and awareness of Fiji's wildlife both domestically and internationally. Its main emphasis is on terrestrial conservation and biodiversity, and its recent projects/activities include butterflies, discovery of a new species of snake on Taveuni, sago palm awareness raising and management, breeding and surveying of different endemic bird species, preparation of an endangered species compendium, and forest sustainability (it is a member of the Forest Stewardship Council).

115. Initially, NatureFiji-MereqetiViti intended to work in five programme areas but it has added at least two more: Nature Club Programme, Communications Programme, Endangered Species Programme, Resorts' Conservation Values Programme, Conservation Partnerships with Landowners, and Savura Education and Amenity Park, and Fiji NGO focal point for the Communication, Education and Public Awareness aspect of the Ramsar Convention.

F. Drawa Community-based Sustainable Forest Management Project

116. This forestry project is based in central Vanua Levu. The project area, 6,345.5 hectares, was identified by the Forestry Department in 1994 and spans the land areas of two mataqali from Dreketi-Macuata and nine from Wailevu West Cakaudrove. Training and field activities commenced in 1999 and institutional support was provided by a variety of stakeholders including the Fijian Affairs Board, SPC, Department of Environment, and Department of Forestry.

117. The community developed several 'criteria of sustainability'. They are that the (i) development or utilization type must be designed to ensure that the use of forest resources should correspond to its natural potential (this would lead to economic viability); (ii) utilization of the forest resources should be designed to environmental and/or ecological sustainability, and they should (iii) contribute to the long term security of the economic basis of the people's living. It contributes to the improvement of the living conditions of the rural population and to the overall economic development of the country (these lead to social justice); and (iv) there should be equal distribution of resources, benefits and costs between the human population of the present generation (intra-generational equity) and between the present and future generations (inter-generational equity).

³⁹ <http://www.naturefiji.org/>

118. A land use survey, followed by a land use plan. The forest area is divided thus: 36% as protection forest, 52% was production forest (gross) including agricultural reserves, and 12% as native reserves and agricultural land.

119. The Drawa Landowners' Forest Management Plan comprises several sections: socio-economic goals, environmental and ecological goals, and economic goals. Achieving economic goals include demarcating boundaries, developing a diameter limit table, identify harvesting intensity, select and mark trees, plan harvesting and design roads, selective harvesting system, and develop a strong monitoring and coop closure system. Its objectives comprise:

- promoting Sustainable Forest Management (SFM) in the area;
- achieving a more realistic financial return for the landowners;
- providing assistance in the form of forest management and financial advice to the participating members;
- exploring other income generating activities that would reduce the pressure on the forest;
- marketing non timber forest products; and
- be a model to neighbours or the country as a whole.

4.4 Legislation

120. Fiji's environment-related legislation is recorded in Appendix Eleven.

121. Information contained in the list was obtained from various sources, including M. Sovaki⁴⁰, United Nations Environment Programme⁴¹, and UNCBD Stocktake Report. Many pieces of Pacific legislation are also available from the website of the Pacific Islands Legal Information Institute, www.pacii.org. This website is an initiative of the University of the South Pacific School of Law to promote access to Pacific law.

122. Fiji's environmental legislation is generally dated and its emphasis is on use of or development of resources and harvesting. Much of it needs re-writing. As Evans⁴² (p 50) says, 'Two obvious characteristics emerge from this review of legislation governing natural resources and the environment in Fiji. The first is the clear distinction between the older statutes existing as Chapters in the Laws of Fiji and the legislation recently enacted or under consideration by the government. This second generation legislation is distinguished by its cognition of environmental issues and the necessity of managing natural resources for sustainability. A second obvious defect with the legislative framework is the marginal right of the public to contribute to decision-making. Public involvement is basic in any environment-related regime, but Fiji's laws are seen to be grossly inadequate in this regard. Refreshingly, the marginalization of stakeholders evident in those older statutes is being rectified in the new laws in various stages of development.'

123. The Department of Environment has developed policies and legislation relative to the CBD. The Endangered and Protected Species Act (2002) that covers those species in international trade; it does not protect all native species however. The Environment Management Act (2005), followed by the Environment Management (Waste disposal and recycling) Regulations (2008). The Environment Management Act was spawned from the Sustainable Development Bill (1997) advocated in the NBSAP document. The Litter Promulgation Act (2008) was launched by the department with the intention of prohibiting and regulating the deposit of litter in the environment of the Fiji Islands and to provide for enforcement and related matters. The Ozone Depleting

⁴⁰ M. Sovaki, 2007, in Ministry of Tourism and Environment. *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

⁴¹ <http://www.unep.org> – accessed September 2008

⁴² Evans, N. 2006. *Natural resources and the environment in Fiji: A review of existing and proposed legislation*. IWP-Pacific Technical Report (International Waters Project) no. 21. SPREP, Samoa.

Substances Act 1998 controls the sale and use of substances that deplete the ozone layer and support Fiji's ratification of the Vienna Convention and the Montreal Protocol (Appendix Five).

124. The Department of Environment has facilitated meetings of the Fiji Islands CITES Management Authority and the CITES Scientific Council. The department also has been instrumental in Fiji acceptance of the Ramsar Convention in 2006, and is included in the steering committee for the one Ramsar site (Upper Navua Gorge) in Fiji. It has also performed work in Fiji in support of the Stockholm Convention on Persistent Organic Pollutants. A climate change country study was carried out in 1996-97. The other major CBD-related activities undertaken under the facilitation of the department are the NBSAP, and the Cartagena Protocol on Biosafety (below) for which the department is the focal point. The Climate Change Policy (2008) has been passed.

Constraints/Actions

- The Fiji Parliament is required to make provision on the application of customary law (Section 186 of the 1997 Constitution)⁴³. Customary Law prohibits killing or hurting of some particular plants, birds and insects in certain localized areas only. Examples are mangroves in the Tikina of Vitogo, turtles for Moala Village in Nadi and sting rays in some areas of Yasawa and the Manu Tabu for Cikobia Island. Customary Law is local. Parliament could consider prohibiting intentional harming of species in local areas where customary prohibition applies. It also requires strict adherence to non-harvesting for regeneration purposes or for special customary purposes where a limited prohibition has been placed; e.g. Macuata Province has placed prohibition on fishing in certain sections of its reefs from time to time.
- [Vuataki again] By entrustment of the power to make laws for the Fiji Islands the Crown took on the role of custodian of wild life as from 10 October, 1874. I am happy to say that the Crown has exercised its duties well in this regard, except for non proper policing of discharges into marine life areas like the Suva fishery or the Qawa River and stripping of mangrove nursery areas for juvenile marine life. By the Fisheries Act it prohibited practices harmful to marine life and by the Forest Act it created nature reserves over Crown land or land leased by the Crown.
- [and again] Fiji has global, regional and local obligations to conservation of wildlife. It must not rely on ancillary Acts like the Forest Act or Fisheries Act or the Endangered and Protected Species Act or the Environment Management Act. It must be honest with itself and pass a Wildlife Conservation Act. In it, Wildlife would be defined and classified, and an Advisory Committee and a Research Institute established [or nominated] to conduct wildlife surveys. Such audits would localize studies of Wildlife rather than rely on offshore audits.

5 Capacity assessment and recommendations of the Government of Fiji, the implementing agency and partner institutions

There are three levels of capacity development. They are systemic, institutional, and individual^{44, 45}.

⁴³ Kitione Vuataki. 2007. *Wildlife Conservation and the Law*. Address given at the 9th Attorney-General's Conference 2007, Shangri-La's Fijian Resort, 30th November – 2nd December 2007.

⁴⁴ Ashis Mohapatra. August 2008. *Final report. Fiji's capacity level assessment for Rio obligations on United Nations Framework Convention on Climate Change, United Nations Convention on Bio Diversity, and United Nations Convention to Combat Desertification*. Report prepared for the Department of Environment National Capacity Self Assessment Project (NCSA) – Fiji and the United Nations Development Programme Suva, Fiji.

5.1 Systemic Capacity

Capacity building at the **systemic level** emphasizes the overall framework of policies and plans in which individuals and organisations operate and interact with the external (economic, regulatory, accountability) environment. It also involves the relationships that exist – both formally and informally – between institutions and the distribution of institutional responsibilities. Generally, it refers to the Government.

5.1.1 Fiji Government

124. Accountability on environment by the Fiji Government is under question and until recent years there has been overall a lack of political awareness of the importance of biodiversity conservation, including of the CBD and its obligations. Any work on the environment needs a serious commitment from government.

125. Attention to key areas of concern (e.g. mangroves, forests, urbanization, coastal degradation, invasive species) has lapsed in government. An enabling environment and widespread recognition of the economic value of biodiversity protection in Fiji needs to be brought out in all possible fora, including the media.

126. With a greater government profile, conservation of biodiversity could overcome some of the severe constraints it experiences due to insufficient financial resources, perhaps attributed to changing government priorities. Loss of, insufficient, or unsustainable funding are major obstacles as they affect the outcome of programmes as well as staff morale. Such action may result in loss of skilled staff, change of programmes, loss of funding for programmes and ultimate abandonment of programmes (if the 'direction' of the new ministry differs from the one in which programmes were initiated).

Recommendation 1. *Greater political commitment is required to ensure implementation and sustainability of conservation programmes at the national level. Political commitment needs to be translated into national interventions that address the overall economic, policy, legislative, political and national infrastructure to ensure sustainable development and sufficient protective measures⁴⁶. The advice of the National Environment Council should steer government conservation policy.*

127. **Management of Fiji's international treaty obligations is poor; there is a need to submit timely and accurate report.** Poor convention management also has implications for Fiji's export trade and international reputation. Fiji has signed up to 37 international conventions relevant to the environment and biodiversity but it is on occasion late in meeting reporting requirements, sometimes unsuccessful implementation and on one incident with Methyl Bromide was censured for not meeting treaty obligations. Meanwhile, accession to other equally important treaties has not been performed, and implementation and/or ratification of still others have stalled. The Fiji

⁴⁵ National Capacity Self-Assessments. UNDP/GEF Resource Kit (No. 3). Report, International Development Research Centre, www.idrc.ca/en/ev-28265-201-1-DO_TOPIC.html - accessed August 2008

⁴⁶ Let it not be as The Austral Foundation identified (2007: 21) when it found that since 1880 Fiji has enacted at least 37 pieces of legislation for the protection of its environment and natural resources that have mandated at least 15 Ministries, statutory bodies and other agencies with authority in this field. Yet reviews have identified weaknesses and deficiencies in key areas of legislation. The most recent of the reviews (2004) was the eighth conservation legislation review in 12 years. The author, Turk, noted that the findings of all previous reviews had been largely ignored. Had any of the previous reviews been implemented, the author claimed, 'heritage in Fiji would be more comprehensively managed and protected'. Turk's own report appears to have been ignored in the three years since its completion.

Government (Department of Foreign Affairs, National Planning Office – even related government departments) generally is unfamiliar with what international conventions and treaties Fiji has signed, and the annual sequence of related fora at which it should be represented.

128. Having committed Fiji to various international treaties, there is little coordinated approach to dealing with additional resource requirements that result from signing of the treaties. Although recommendations to accede to particular conventions should be deposited with the Department of Foreign Affairs and fully costed implications of signing submitted also to the Department of Finance, those requirements often are not followed through. It is these two failures (at least) that cause the problems identified in point 2 above.

Recommendation 2. *A status review of Fiji's environment conventions and Fiji's obligations to them should be carried out as a high priority.*

The Government must centralize information on international treaties and ensure that proper procedures for deciding to accede to every treaty are followed. (This process may require a complete review of ALL conventions already signed; see Section 2.8 above). The centralized information (database) must be linked to all government departments and statutory authorities, and national policy planners – as well as the Department of Environment – should make themselves familiar with the obligations of all environment-related conventions and treaties (and indeed, of all international conventions that Fiji has signed). The National Committee for Sustainable Development (NCSD) in the National Planning Office could be the implementing agency.

129. Institutional linkages are not defined properly with no established link between policy development and economic planning, overlap of responsibilities, and too many agencies with poorly-articulated structures and often conflicting agendas. There also is low participation at high-level decision making. There are no clearly defined mandates and organizational independence between government departments.

130. Government departments do not communicate often with each other resulting in a lack of coordination with focal points. Dissemination of information at the national level is therefore inefficient, meaning that not only are politicians and public servants uninformed, but the loss of biodiversity and the losses of goods and services that accompany that loss are not properly understood, documented, and raised to public consciousness.

131. Enhancing communication would lead to greater participation and involvement: improved institutional frameworks and linkages are needed.

Recommendation 3. *The Fiji government should ultimately overview its structure and put in place measures to ensure effective communication and information exchange. The role of the National Committee for Sustainable Development (NCSD) in the National Planning Office should be enhanced and its role as a coordinator in government environment-related issues and partnership with the National Environment Council clearly identified.*

132. There is no integrated research and monitoring strategy within government and coordination of research and implementation of research results are slow (this constraint is common to individual government departments, other institutions and NGOs). Lack of coordination and information sharing encourages tremendous inefficiencies in applying research results to development and wastes resources.

Recommendation 4. *The government should establish a research and development authority that oversees and coordinates all research and monitoring of environmental and biodiversity issues in the country.⁴⁷
The National Environment Council should be involved in overseeing this activity.*

133. Although there are many pieces of legislation referring to the environment (Section 4.4; Appendix Eleven) much of it is antiquated and irrelevant to today's needs. Moreover, several key pieces of legislation have been in draft form (or as bills) for a long time and necessary legislation in other fields (e.g. bioprospecting and biosafety, protection of culture and traditions, genetic resources, exotic species, comprehensive protection of endemic fauna and flora) has not been, or is only partially, drafted.

134. Legislation also may be difficult to implement. The legislative framework currently assigns responsibilities for the conservation of biodiversity among numerous institutions and often these have overlapping, and at times conflicting, tasks (e.g. between Quarantine and the Fiji Customs Authority).

Recommendation 5. *Draft legislation should be reviewed and updated as a matter of urgency, new and appropriate legislation drafted or outstanding bills followed through. Revision and harmonization of legislation is necessary and urgent.*

Guidelines and/or new legislation should be developed for bioprospecting and economic use of genetic material and products which incorporate fair provision for traditional knowledge and ownership (Article 8, NBSAP). Government should be proactive in its approach to legislation.

135. There is a high attrition rate in the public sector (particularly of skilled people) due to better job opportunities 'outside'. For example, the Department of Environment has lost well-qualified and experienced staff and also junior staff who had gained some experience in the Department. Cited reasons for leaving government employ include lack of career paths, low salaries, lack of incentives and lack of in-service training provisions. Professional training (i.e. in environment-related and cultural portfolios) is lacking in Fiji. This lack leads to a dependency on international expertise, or donor dependency, as well as a loss of institutional memory.

Recommendation 6. *Government should address appropriate career paths and salaries, initiate appropriate training activities (available through regional partners) and put in place additional incentives to retain experienced staff.*

136. Introduced alien species always have a negative effect on the biodiversity of a country, especially in an island country like Fiji where the level of terrestrial endemism is high, and where some endemic species are endangered. Controlling invasives requires adequate resources. In view of the **national economic implications of invasive species** their control should be a core

⁴⁷ Coincidentally, on 8 October 2008 the Fiji Government announced the establishment of a Fiji National Research Council (FNRC) to centralize all Government research. Environment data will be kept in the FNRC. ('Body to centralize govt research', *Fiji Daily Post*.)

activity of government. An important first step in the recognition is much-enhanced awareness raising at top government level.

Recommendation 7. *The Government take a fresh look at the implications of invasive alien species in Fiji and establish a lead organisation for their control and evaluation of all planned introductions. The National Environment Council should be involved in overseeing this activity.*

5.2 Institutional Capacity

Capacity building at the **institutional (or organisational) level** focuses on the overall organisational performances and functioning capabilities, as well as the ability of an organisation to adapt to change. It aims to develop the institution as a total system, including individuals, groups and the organisation itself. Items included in this area include access to finance, information and technology, infrastructure and other resources, and relationships with other organisations and stakeholders. Fiji Government departments and statutory bodies, other institutions and non-government organisations are included here.

5.2.1 General government

137. Institutional and systemic constraints and recommendations of government largely overlap. Some are addressed under 5.1 and others below.

- Financial resources is an impediment for all government departments. Limited resources is a most serious problem in management and survey of biodiversity conservation, and in implementing legislation. Particularly troubled are officers in the departments of Forestry and Fisheries whose work covers a wide geographic area; e.g. officers often do not have transport or allowances, or there are insufficient staff to perform the departments' mandates.
- Although lack of financial resources was identified as a primary contributing factor to inefficiencies, it was acknowledged that donor funding often exists. The constraints are in identifying and accessing sources of funding.

Recommendation 8. *Government environment-related stakeholders must have dedicated staff who are familiar with the international donor cycle, tendering and project proposal preparation (Note: the Department of Culture and Heritage is already active here). Collaborating stakeholders working together (see Recommendation 3) could efficiently use donor funding to carry out innovative and much-needed conservation programmes.*

Establishment of a Conservation Trust Fund (as in NBSAP) to be considered.

- Little sharing of information among work colleagues and linkages between departments is weak.
- Mission and vision statements are too broad or generic. Generally departments demonstrate a lack of objective self analysis and criticism.

These two constraints would be addressed under **Recommendation 3**.

- Lack of technology and professional training. In most specialist government departments, follow-up training is required. There also is a need for access to tertiary level and/or

specialist training in cultural and environment-related fields – either in Fiji, or overseas (preferably in Fiji).

Recommendation 9. *Fiji academic institutions should be encouraged to establish professional courses in forestry, fisheries, invasive species, biodiversity, taxonomy, archaeology and palaeohistory. Training in technical areas of biodiversity and cultural conservation should be enhanced. Prime among these is taxonomy. Fiji should also make overtures to overseas institutions that hold collections of Fiji biota to (a) return representative collections of that flora and fauna, and (b) assist with the training of locals and establishment and operation of local collections (as per Article 9 of the CBD).*

- There is general unfamiliarity with environment legislation and the obligations of international treaties – and indeed, with any government legislation – including that which governs individual departments.
- There also is insufficient knowledge among government stakeholders on Fiji's flora and fauna and conservation initiatives in place.

Recommendation 10. *Familiarity with environmental legislation, government policies, and local flora and fauna should be enhanced, perhaps through inter-departmental and inter-stakeholder seminars and discussion groups. Knowledge of such matters and full utilization of existing scientific and traditional knowledge will encourage effective implementation of policies and programmes, ensure improved implementation of legal instruments, and greater participation and involvement in programmes. It also will encourage better public awareness of biodiversity and the environment.*

Enhanced knowledge of Fiji's biota, environment legislation, and conservation programmes also would present positively within the region and ensure that Fiji's conservation needs and profile are acknowledged.

Recommendation 11. *Environment sections should be (re-) established in the NLTB, Department of Forestry, and Fiji Electricity Authority (at least); hopefully also the Fiji Sugar Corporation. Local, provincial and district councils should also host an environment section – or keep in regular contact with the Department of Environment on environmental matters (better, the department be proactive in updating these organisations)..*

5.2.2 Department of Environment

137. In the section below, some issues identified already have been discussed above; there are also new concerns.

138. **The overall status of the Department of Environment** as the focal point for the CBD, as well as its functioning as Fiji's core body mandated to manage biodiversity conservation and environmental issues, **still has gaps**. Apart from constraints such as lack of communication, insufficient staff, the Department needs to better fulfill its vision and mission⁴⁸.

⁴⁸ (as at September 2008) Vision: 'A safe, healthy and sustainable environment which contributes to continued and improved quality of life'. Mission: '1. Promote the sustainable use and development of Fiji's natural resources and ecological processes through efficient implementation of policies, legislation and programs. 2. Help fulfill Fiji's obligations under regional and international environment related conventions and treaties.'

139. A major problem that is not of the Department's making is the increasing profile of conservation and environment in Fiji that is not matched with increased resources. Appendix Ten (budget for the years 1992 to 2008) reveals the large amount of donor funding accessed, the overall low amount of government funding, and the low staff numbers identified to undertake the annually increasing work load.

140. The Department staffs are dedicated and they demonstrate a high commitment to their roles; they do attempt to fulfill the Department's responsibilities.

Staffing

141. The efficiency, motivation, productivity and ability of the Department of Environment is negatively affected by an acute shortage of skilled staff and few staff on established positions (un-established staffs and volunteers carrying out perhaps 60% of duties).

142. The matter of un-established staff and volunteers. In the Department of Environment the current staff composition is 10 established staff, 12 unestablished staff and 11 volunteers. The period of engagement for volunteers is up to three months, and it can be renewed for another three months but no more. The volunteers may apply for advertised positions (if any are) or else apply for unestablished positions that become available. Meanwhile, the security of staff occupying unestablished positions lasts only as long as that project. The possibility of volunteer and unestablished staff not securing (follow-up) positions in the Department of Environment is a severe waste of experience, encourages poor work performance and disrupts work output – i.e. new volunteers may not have all the required skills and are not familiar with programmes in the Department;

143. Insufficient or underskilled staff to meet identified tasks of the Department results either in tasks not being done, tasks incomplete, or NGOs/USP taking over the tasks. For example, according to a recent newspaper article⁴⁹, the Department is undertaking awareness programmes about the Environment Management Act 2005, a National Waste Management Strategy has been developed and endorsed by Cabinet, and 'Meanwhile the department would continue to focus on the theme for this year as it is committed in seeing that some of the work on endangered species [is] carried out. These include ongoing awareness programs on endangered species, recommendations for inclusion of some species in the Endangered Species Act, update existing information on Fiji's species and developing policies or management plans for protected areas or new species'. And this list of activities does not include biosafety, library and general administration, convention reporting, NCSA, ozone depletion, POPs, litter decree, EIAs, CITES, invasive species, and other tasks. In the same article, the 'lack of enforcement resources' was identified as one reason why existing penalties have been ineffective. Clearly the Department has the best of intentions, but its ability to perform its identified tasks is minimal due to the lack in capacity.

144. Curiously, the Department of Environment has not always been hampered by a shortage of skilled staff. In the course of interview for this assessment, the author learnt that several capable and post-graduate qualified and experienced staff who had been engaged in the department in the recent past have all left – either because of lack of a career path and appropriate salaries (**Recommendation 6**). The calibre of these staff is beyond question (they are now in senior positions in various institutions in Fiji) but their departure has been a negative for the department and for Fiji's attempts to conserve its biodiversity.

144. Accompanying this matter, is the vague statement of required qualifications for positions in the department⁵⁰. For example, someone who has worked in 'any other organization with meritorious performance' can be appointed to the position of a principal environment officer in lieu

⁴⁹ 'Hefty penalties for pollution offences'. *The Fiji Times*, 10 June 2008

⁵⁰ Advertised in *The Fiji Sun*, 30 September 2008

of someone having experience, 'meritorious performance' and post-graduate [e.g. Masters; PhD] qualifications.

Recommendation 12. *The qualifications and experience of all Department of Environment staff should be appraised and appointments re-arranged (or cancelled) as necessary, to enable effective management of a sustainable environment in Fiji and retention of its biodiversity.*

The matter of engaging volunteers and their future careers should be assessed.

Funding

145. The problem of funding is common to all government stakeholders and is discussed above. In the Department of Environment, a large percentage of government funding is used for staff salary and operations, leaving little for projects. This lack of sufficient funding (resources) leads to dependency on donors – both for operational and salary monies. Once donor funds are obtained, there is every chance that not all of it would be used for its stated purpose.

146. Appendix Ten reveals the annual government and donor funding provided for Environment between 1992 (the year of the Rio Earth Summit) and 2008. Comparison of the proportion of government funding in the total budgets and the number of staff for the past eleven budgets are given below. (Note: there were two budgets for 2000; figures for 2001 are not available; volunteers are not included in staff numbers).

Year	1998	1999	2000	2000	2002	2003	2004	2005	2006	2007	2008
% \$ from Gov't	24	28	2	36	28	70	32	42	46	63	80
# staff (all)	9	9	9	9	9	10	10	10	15	18	19

147. Whereas generally donor funding is in the best interest of Fiji meeting international commitments and strengthening capacity in the department, it also means that some department staff are committed to working on the donor projects. The shortfall in staff available to work on domestic projects surely partly explains the inability of the department to fully perform its domestic duties (see above in several sections), why it engages so many volunteers, why NGOs take over (domestic) tasks attractive to them, and why the department often collaborates with other stakeholders in attempts to fulfill its mission.

Recommendation 13. *The Department of Environment needs to be strengthened by giving it resources sufficient for it to manage its domestic (national) duties. The Department should 'manage upwards' to Government planners by being much more vocal in its staffing and funding requirements, and in promoting biodiversity conservation. In seeking donor support, it also must bear in mind that its major obligation is to the nation of Fiji, above any regional obligations.*

Intra-department management and coordination

148 It is recognized that the Department of Environment has many tasks to fulfill and few experienced staff. Some of the issues noted during this assessment or brought to attention by staff and external partners are cited below. Generally they reflect a lack of direction and inability to prioritize tasks by senior department management. There is also a **lack of delegation of tasks** to more junior staff.

- the department is not proactive in publicizing environmental issues, the media often going to NGOs for comment instead [comment from several external partners];
- no centralized information system where information from sections could be accessed⁵¹;
- although the NEC is required (Environment Management Act, 2005) to meet at least four times each year, even this year (2008) it met for the first time in the third week of August. This situation could reflect several problems, including (a) the composition of the NEC is too broad; (b) 'environment' is not given sufficient priority by members of the NEC; or (c) the department is need for a dedicated team with no added responsibility at DOE to facilitate and organize for NEC.
- the department having insufficient information on certain groups of Fiji's flora and fauna compared to a relative abundance of information on other groups or regional issues, makes an effective holistic approach to biodiversity conservation difficult to achieve;
- addressing key areas of concern (e.g. mangroves, protected areas, forests) has lapsed;
- there is no coordination of and identified responsibility for Fiji's international environment treaty obligations (this matter is addressed in **Recommendation 2**);
- the outputs (targets) presented for each budget year (Appendix Ten) are diffuse and non-measurable.

Recommendation 14. *Communication within the Department should be improved to raise awareness, commitment, and adherence to fulfilling obligations. This could be done by having more staff meetings, and establishing an appropriate information management system (this would assist in streamlining and harmonizing the efforts and integration of different stakeholders).*

Recommendation 15. *The Department should re-establish priorities, particularly to attend to national areas where there is little information, and those where immediate action is required.*

Senior Management and Project management officers should be obliged to undertake in-service training that is incorporated into Cooperate Plan.

Interaction with stakeholders

149. The Department of Environment attempts to collaborate with other environment stakeholders – e.g. on the development of protected areas legislation (Appendix Seven, Article 8(i)) – but as its programme is influenced by external donors (see above), preparation and implementation of legislation, and reporting, it has inclined to leaving conservation biodiversity to academic and NGO stakeholders. There are twenty NGOs based and active at various levels in Fiji.

150. Communication between all stakeholders (including NGOs) generally is low and competitive. Sharing information between key stakeholders is not happening – but is partly alleviated is stakeholders are working together on a project. There is a lot of territorial work.

151. In view of the many organisations involved in conservation and sustainable use of biodiversity in Fiji, improved institutional frameworks, linkages, and communication among all

⁵¹ On <http://www.adb.org/Documents/CAPs/FIJ/0103.asp>, there is advice that in 1994 the Asian Development Bank approved a Technical Assistance to the Government to establish a database for natural resources, improve environmental awareness, and prepare more comprehensive legislation. The status of this database, and where it is held (if it exists) is unknown. In 2004 F\$20,000 was donated also for 'information technology' services (Appendix Ten).

stakeholders are required and harmony and stability within institutions and among stakeholders facilitated.

152. As identified in Sections 3.2 to 3.4 (above), implementation of Fiji's NBSAP has been left largely to the NGO and academic stakeholders because of lack of capacity in the Department of Environment. The 'How' to implement the NBSAP was not identified originally, and the 'When' was not set (Section 3.2). The Department of Environment's minimal commitment to the NBSAP is also demonstrated by its inability (as the coordinator) to initiate the recommended Biodiversity Steering Committee, the Scientific Advisory Committee, and establish an environment trust fund.

153. Even so, responsibility for the only partial success of the NBSAP – brought together over several years through the dedication of Fiji's best environmentalists and supported by UNDP-GEF funding of at least \$1,652,000 (Appendix Ten) – lies with the Department of Environment, Fiji's CBD focal point. Implementation of the NBSAP is still on hold because there was no national coordination of the strategy and action plan. Lack of a holistic statement of Fiji's biodiversity and conservation needs are also demonstrated in the failures (e.g. absence of action to identified priority areas). A clue to the department's non-commitment to the NBSAP is the suggestion by a senior department staff member that the NBSAP should be modified to accommodate changed interest areas in national conservation activity⁵².

154. Attempts to restore ecosystems and recover threatened species are carried out in a piecemeal and independent manner because there is no system or strategy, or a ranking of priorities.

155. Another major impediment to national coordination is the situation of Memoranda of Understanding (MOUs) with other environment stakeholders, notably NGOs.

- The department does not have current MOUs with most NGOs. It also is uncertain whether commitments made in lapsed MOUs were followed through – either from the NGO or from the department;
- whereas the MOUs^{53, 54} state that the NGO-nominated 'coordinator' (liaison person) shall 'provide annual reports to the Government and other concerned parties covering programme and project activities, difficulties it faces, problems foreseen, financial obligations and disbursements, evaluation results and recommendations' there is little evidence that the commitments are met, by either party. Departmental contact with NGOs is generally informal or takes place on occasions of committee meetings for projects (e.g. Ramsar, CITES, the NEC, National Protected Areas, FLMMA): there is no scheduled reporting, no regular meetings, and a lack of monitoring of MOUs by the Department of Environment. This means that the NGOs choose when and if to inform the department (the CBD focal point) what activities they are undertaking.
- some NGOs do have MOUs, but with other government departments (e.g. Live and Learn Environment Education has an MOU with the Department of Education; Coral Reef Alliance has an MOU with the Department of Tourism).

⁵² At presentation of the CBD thematic assessment review, 25 September

⁵³ Information from the only MOU I have sighted – between the WCS and the Fiji Government, signed 20 September 2002. The department advises that whereas they have MOUs with other stakeholders (see next footnote) privacy reasons prevented my access to their contents.

⁵⁴ The department advised me that it has MOUs with five of the 20 NGO/independent organisations listed in the CBD Stakeholder report. These organisations are WCS, WWF (FCP), NatureFiji-MereqetiViti, WI – O, and PCDF or FSPI (a regional organisation). Draft or interim MOUs are held with three other organisations (IUCN, CI, BI).

Recommendation 16. *The Department of Environment should update all MOUs and where there are none, create them. Information on MOUs with other government departments should be acquired. All MOU and stakeholder information should be kept on a database (some of which may be shared with other environment-related departments). Mandatory and standardized reporting procedures should be incorporated in all revised MOUs. Finally, MOUs should be renewed every two years.*

Recommendation 17. *The Department of Environment should identify a dedicated liaison officer for NGOs and other environment stakeholders. The officer's duties should include communicating effectively with those stakeholders (e.g. regular monthly or bi-monthly meetings), accepting submissions from other stakeholders, following-up any requests, and monitoring their activities.*

Awareness raising

156. As the CBD focal point and Fiji's government guardian of the nation's environment, the Department of Environment has tried its best to do **public awareness of Fiji's biodiversity**. The department is identified as the lead organisation in 54 of the 104 actions in the NBSAP (covering community support, improving knowledge, protected areas, species conservation, invasive species, capacity building and strengthening).

157. Every year the department's Education Unit carry out environment awareness-raising campaigns to schools and village communities in some districts their activities have been few (although welcomed and well-intentioned). The government has funded these activities – a commitment that is refreshing.

158. However,

- Department staff admit that they are often not aware of some local fauna and flora than they are of regional flora and fauna (this mirrors the source of donor funding);
- ineffective communication of policies and policy instruments to local and regional organisations and communities causes dismissiveness of Fiji's key concerns;
- existing legislation is made ineffective by the government's lack of capacity in fulfilling its legislated obligations and actually implementing its environment laws. For example, the Department of Environment admitted that the Litter Promulgation of 2001 failed because of the lack of staff tasked to enforce the promulgation,⁵⁵
- the Department of Environment has difficulty administering coral and live rock exports under CITES, partly because staff are not familiar with coral taxonomy and Fiji's species complement;
- **the department is silent in any protest over introductions of alien species**, although it has begrudgingly⁵⁶ participated in workshops aimed at developing a strategic action plan on invasive species. The department does not carry out any risk assessment of planned introduction of exotic and potentially invasive species, although this obligation is identified in Article 75 of the NBSAP (under Focus 5, 'Management of Invasive Species');

⁵⁵ 'Why litter decree failed'. FijiVillage.com, 30 August 2008

⁵⁶ 'It has taken us several years – literally – to get as far as the two multi-sector coordination meetings we've participated in so far, so that's a huge step forward for Fiji. Development of a Strategic Action Plan [for invasive alien species] will be another big advance and will be done when the folks in Fiji are ready to take that step, hopefully in the near future'. (Comment, September 2008, by one leader in the Pacific Invasives Learning Network (PILN) based at SPREP).

- overall a lack of leadership in moving forward the environmental agenda is demonstrated by the department. Sadly, only one of five recently advertised⁵⁷ environment officer positions is identified for biodiversity conservation (the remainder are to support waste management and EIA legislation).

Recommendation 18. *Existing scientific and traditional knowledge of biodiversity needs to be fully utilized and made available to the public through education and awareness programmes. Public education efforts must continue and mechanisms found to ensure its sustainability. Special emphasis should be placed on the tourism industry, the judiciary, police, local government organisations and communities in protected areas.*

By decentralizing the department (its only office is in Suva) environmental awareness throughout Fiji would be enhanced significantly.

5.3 Individual Capacity

Capacity building at the **individual level** refers to the process of changing attitudes and behaviours and imparting knowledge and developing skills while maximizing the benefits of participation, knowledge exchange and ownership. It enables individuals to perform functions, and make decisions, ensuring these are implemented in an effective, efficient and sustainable manner. It also includes levels of education, formal and informal skills, levels of responsibility, decision making, incentives, salary structures, motivation and morale. It refers to the people who comprise the organisations.

5.3.1 Department of Environment

159. Most issues raised by department staff have already been addressed above. But there are others:

- Little knowledge of the CBD and its requirements;
- staff allocations and skills capacity are insufficient to meet CBD obligation reporting, information gathering and management;
- generally low qualification and staff capacity, resulting in heavy reliance on consultants for reporting (which has a negative effect as consultants' skills are not transferred);
- high turnover of qualified staff, especially those technically qualified;
- low incentives as no assured career path, tenuous employment security, low salaries;
- no orientation training on environmental issues given on joining the Department;
- follow-up training on any course often not available;
- staff meetings few;
- 'downwards' communication is minimal;
- 'top-up' communication is often formal (email and hard-copy) instead of personal.

⁵⁷ Fiji Sun, Tuesday September 30th

Recommendations 6 (training) and 10 (legislation) address some of these capacity concerns. Added to them should be in-service training in proposal writing, project and time management and negotiating skills, effective communication, human resource management, delegation, and conflict resolution.

5.5 Non-Government organisations

160. Twenty NGOs are based in Fiji. Some of them are international and a few are local. Some others comprise mainly volunteers who work with local communities here. Senior staffs in these NGOs were interviewed, and a summary of their capacity and concerns in Fiji is:

- NGOs recognise that the Department of Environment needs to be the coordinator with strategies and capacity, but it is not the job of NGOs to fix government structures. NGOs are unwilling to contribute significantly to the department as they need guarantees that the money would be used effectively and transparently;
- NGOs would assist if there were plans and capacity;
- there is no integrated research and monitoring strategy within and between NGOs and coordination of research and implementation of research results are slow. Furthermore, Communication between all stakeholders sometimes/often is competitive;
- it is worth noting the principles of the draft Action Strategy of the 2007 Roundtable⁵⁸ that include statements such as 'International partners will commit to ... aligning all conservation programmes with those of the national partners ..., strengthening national and local partners as an alternative to establishing their own institutions and infrastructure ..., ensuring all key programme decision-making takes place in-country with participation by national and community partners and led by their conservation priorities'; also that 'International partners will commit to 'working within the legislation, policies, strategies, programmes and priorities established by national partners ..., and working with each other to ensure collaboration analysis, strategies, agreed priorities and coordination of political engagements to avoid duplication ..., and avoid programming that directly competes with national partners for projects and funding.' Sadly, these principles and many others are not being followed through in Fiji;
- NGOs often are obliged to compete for funding. As there often is one single, identified 'basket' of funds, the NGOs are forced to compete with each other for the money. To be successful, the NGOs have to exhibit some uniqueness, or put a 'brand' on their projects, and reason why they should be funded in preference to other NGOs;
- although in Fiji, NGOs often work with other NGOs to restore ecosystems, recover threatened species, carry out community awareness programmes, and work with FLMMA, just as often they do not⁵⁹. This means that programmes are carried out in a piece-meal and independent manner: there is no system or strategy, or a ranking of priorities;
- the challenge for all NGOs is generating the funds necessary to achieve their agendas and to be able to do this over time as successful conservation, especially community-based conservation is not achieved in short time frames. As well as the financial

⁵⁸ Roundtable for Nature Conservation. 2007. *Action strategy for nature conservation and protected areas in the Pacific Island region 2008-2012. Empowering local people, communities and Pacific institutions*. DRAFT.

⁵⁹ This statement, sourced in the 2007 Austral Foundation report, was refuted by Birdlife International (*Fiji Times*, 9 July 2008)

resources required it takes time, perseverance and consistent engagement on conservation issues to effect change in Pacific countries.

- a common perception is that the international donor funding cycles dictate short term projects, with reports of communities with unfulfilled expectations. Complaints of lack of follow-up and hopelessly inflated claims of success are able to be leveled at any organisation. Such organisations are characterised by limited resources, a project approach, being donor driven rather than having a well conceived strategy that engages properly with the local communities and attempts to understand and meet their aspirations⁶⁰.
- NGO work is dictated by donors; for example in Fiji there is a lot of emphasis on marine ecology; a slight shift back to terrestrial ecology is beginning;
- some NGOs do not have current MOUs with the Department of Environment (or, for that matter, any other Fiji government department). This may be because they came to Fiji to do one project that subsequently expanded into another, or took longer than they originally estimated, or they may have joined another NGO on a project;
- international NGO agendas are not always adapted for the local context, and the NGO therefore may struggle to be as close to local communities as can a local NGO.

Recommendation 19. *Environment NGOs working in Fiji should introduce itself to the Department of Environment and seek permission to work in Fiji, follow government guidelines, arrange an MOU with the department but ensure that all other relevant departments have a copy of it, and list information about its MOU on its website or in its printed literature. Criteria for access to Fiji, and activities and reporting of NGOs should be established and evaluated. MOUs for national and international NGOs should not be the same: more conditions should be attached to international NGOs.*

Recommendations 20. *International NGOs should be faithful to the commitments they make at Roundtable workshops.*

Recommendation 21. *As a matter of principle and a condition of the NGO working in Fiji, NGOs undertaking any work in Fiji – including taxonomy – should engage local people. If there is none available, a local person should understudy the expatriate expert and an agreed timetable be set for the local person taking over the duties of the expatriate.*

Recommendation 22. *NGOs and government should develop a Code of Practice on how they can work in partnership. Furthermore, if several NGOs were to join forces in particular areas (as sometimes is done: e.g. when restoring ecosystems and recovering threatened species), more would be achieved for much less.*

161. Concerning international NGOs, The Austral Foundation⁶¹ recommended that

- the Government set a clear and standard process for their establishment, operation and accountability;
- NGO programmes should be designed and implemented to ensure results and ownership belong to the people of Fiji and local organisations in partnership;
- all NGO programmes should be strategically designed [*following a national strategy*];

⁶⁰ <http://www.naturefiji.org/>

⁶¹ The Austral Foundation. 2007. *Review and analysis of Fiji's conservation sector. Final report.* [Report authors Annette Lees and Suliana Siwatibau]

- funds from donors should support the national conservation strategy and its priorities;
- donors should ensure that their programmes support development of Fijian ownership and leadership of conservation programmes within Fijian institutions; and
- all programmes are designed to build local capacity.

162. A more determined statement on international NGOs is provided by Watling⁶² who also suggested cooperation between each other and government departments, acceptance of government needs and priorities, being prepared for long-term commitments to conservation projects in Fiji, and concentrating also on awareness raising – particularly with children.

163. These two relevant reports are ‘on the table’: it is not the purpose of the thematic assessment to review them. The opinions and conclusions do however, generally support the observations made in this assessment.

5.6 Overall constraints and recommendations

164. According to the United Nations Environment Programme⁶³, Fiji’s National Environmental Policy is ‘Maintenance of Fiji’s healthy environment through protection and conservation of its unique features, and the judicious utilization of its resources to form an integral part of development’. However the ability of the Fiji Government to carry out its identified mandate through its Department of Environment, is seriously lacking.

165. As Carter (2007)⁶⁴ and Fiji’s NBSAP itself identify regarding the NBSAP Action Plan: ‘The current administrative framework for biodiversity conservation in Fiji is poorly developed with its responsibilities not well defined, a lack of capacity and severe funding constraints.’ ... ‘In the absence of an administrative structure, the current ill-defined responsibilities will prevail and it will be very difficult to provide effective leadership and co-ordination in the implementation of the Strategy.’⁶⁵

Today, strategies and actions identified in the NBSAP largely have not been undertaken by the CBD focal point: where they have been carried out usually it was on the initiative of NGOs or academic institutions.

166. The following thoughts and recommendation pertaining to the Department of Environment (the CBD focal point) are collated from many stakeholders, informants and personal observations:

- Not enough government (focal point) leadership of conservation activity is a major drawback to biodiversity conservation in Fiji.
- Little attention by the Department of Environment and the national government generally to Fiji’s environment-related conventions is a huge constraint that has international implications.
- The Department of Environment and other line ministries (e.g. Department of Foreign Affairs & External Affairs, and Finance, National Planning & Sugar Industry) should critically examine its capacity and obligations under the CBD (and other conventions and agreements, both domestically and internationally).

⁶² Dick Watling (2007). Conservation Crusading or Neocolonialism – the Role of International NGOs in the Island Pacific? Invited Plenary Presentation at ‘The Biodiversity Extinction Crisis – An Australasian and Pacific Response’, Society for Conservation Biology, University of New South Wales, Sydney, Tuesday 10th-Thursday 12th July 2007.

⁶³ See: www.unep.org

⁶⁴ Carter, E. (2007). *National biodiversity strategies and action plans. Pacific regional review.*

Commonwealth Secretariat and South Pacific Regional Environment Programme (SPREP), October 2007.

⁶⁵ Page 40, Fiji NBSAP

- Many stakeholders voiced the comment that ‘if the Department of Environment works on its capacity gaps, most of Fiji’s environment and conservation problems would be solved. One NGO said that the original mandate of the Department was policy and coordination (of other Government units and NGOs – see National Environment Strategy, 1993⁶⁶) but the Department’s mission changed to that of an implementing agency – but capacity to do so did not come with that change.
- Lack of a comprehensive national action plan with identified outcomes, timelines, indicators, specific objectives and other project management goals in **the Department of Environment is a difficulty to biodiversity conservation in Fiji**. Capacity development and development of such a plan – in consultation with stakeholders – is a very necessary course of action.
- Government must make a determined and highly professional effort to decide on a biodiversity conservation strategy and how to manage NGO input. The effort needs to be both objective and very professional, with a high level analysis and it must identify timelines, outputs, resources, templates and mechanisms.
- The challenge is on getting the expertise together and providing direction and having long-term leadership in government to be able to move the NBSAP forward.
- An encouraging ‘positive’ is the increased funding provided by the government in the past three years as well as opening-up of more established positions.

166. It is in delivery-of-service interest to Fiji, that all stakeholders should develop a Code of Practice to solve Fiji’s ‘biodiversity crisis’. The habit of organisations not sharing means that outcomes are ineffective – but most NGOs (and some academics) fail to address that problem. Indeed, Fiji’s is an interesting scenario: at least 14 larger NGOs working on Fiji biodiversity conservation presumably because each of them recognises the need for biodiversity conservation here, but each of them (except the FLMMA network) *usually* working alone in its ‘own’ sites and because each is obliged to compete for donor funding, not sharing information. Well might objective criticism be made as the ‘biodiversity crisis’ continues and indeed grows larger every year.

167. It becomes a vicious cycle: NGOs are here because of the ‘crisis’ (that is what we are told) -> compete for funds to address the ‘crisis’ -> individual efforts ineffective on the country-wide scale -> ‘crisis’ deepens -> either more NGOs come, or more NGO funds are needed to ‘solve’ the ‘crisis’ ...

168. In the meantime, the under-resourced Department of Forestry manages to develop a logging code of practice, initiate a forest certification standard, and formulate an accepted Forest Policy for the **whole** of Fiji; the under-resourced Department of Fisheries has managed to so far perform thorough biodiversity surveys in about 80 qoliqolis and is developing a fisheries policy in and for the **whole** of Fiji, and the other government stakeholders (Quarantine, National Trust, Fiji Museum, Culture and Heritage, Education) are performing their duties as well as their budget restraints and resources permit, for the **whole** of Fiji.

169. Sadly – and pointedly – ‘Fiji’ *per se* has ‘fallen through the cracks’ of most NGOs’ attention. They are, as Watling⁶⁷ identified, using Fiji’s unique fauna and flora and community challenges as

⁶⁶ Watling, D. and Chape, S. 1993. *The National Environment Strategy Fiji*. Suva: Government of Fiji and IUCN – The World Conservation Union.

⁶⁷ Dick Watling (2007). *Conservation Crusading or Neocolonialism – the Role of International NGOs in the Island Pacific ?* Invited Plenary Presentation at ‘The Biodiversity Extinction Crisis – An Australasian and Pacific Response’, Society for Conservation Biology, University of New South Wales, Sydney, Tuesday 10th-Thursday 12th July 2007.

a resource for their own fund-raising and international respectability: money spent is not 'controlled' by the Fiji Government but it IS spent in Fiji's name. Either intentionally or unintentionally, that is their purpose – resolving Fiji's biodiversity crisis is not.

170. Again 'it is the donors who condone if not actively encourage these trends. It would appear that they want to process as large amounts of money as possible in short timeframes, irrespective of impact on the ground. The number of reviews and recommendations for less money and longer time frames for conservation projects in the Pacific and SE Asia must run to the thousands, but it does not change. ... Just as importantly we need to restore the conservation mandate back to the island nations themselves. The current trends wrest the information, the planning and the implementation away from the islands to Bingos with no accountability and no responsibilities'⁶⁸.

171. The Austral Foundation report⁶⁹ identified several measures that can be taken to improve biodiversity conservation in Fiji. They are: (a) local leadership, ownership and control; (b) becoming strategic; (c) capacity development for government and other local institutions; and (d) conservation campaigning. The report also recommended that the Fiji government take ownership of the 'biodiversity crisis' and provide leadership to the sector. Furthermore, the NBSAP should be accompanied by a guide to implementation (work programme).

172. This country is fortunate, in having such a large number of international NGOs operating here. The NGOs and FLMMA took it upon themselves to carry out many of the identified activities of the NBSAP; they have initiated many programmes that follow on from the NBSAP or were not even identified at that time; they also have taken a lead in developing protected areas legislation.

173. A most favorable and promising development since the conclusion of the NBSAP has been the establishment of a professional and resourced local NGO, NatureFiji-MereqetiViti.

174. Consider. Although all stakeholders in biodiversity conservation in Fiji have different funding sources, organisational structures, staff numbers and capacities, obligations, and mission statements, they do have two things in common – they are conservation-orientated and they are working in Fiji. Therefore, **it is time for government, non-government, academic and other conservation partners to gather in an absence of competition and identify how they may work together to achieve what, after all, they say they are working towards: the conservation of Fiji's unique and valued biodiversity. It is what is Fiji — and so if we love this place, we all are charged with the guardianship of its being.**

6 The Cartagena Protocol on Biosafety

6.1 National Implementation

175. The Cartagena Protocol on Biosafety was adopted as a supplementary agreement by the Conference of the Parties to the CBD on 29 January 2000. Fiji signed the Cartagena Protocol on 2 May 2001 and ratified it on 5 June 2001, and became a full member on 11 September 2003. The Department of Environment is the focal point. A MOU was finalised with UNEP (United Nations Environment Programme) in February 2008.

⁶⁸ Dick Watling (2007). *Conservation Crusading or Neocolonialism – the Role of International NGOs in the Island Pacific ?* Invited Plenary Presentation at 'The Biodiversity Extinction Crisis – An Australasian and Pacific Response', Society for Conservation Biology, University of New South Wales, Sydney, Tuesday 10th-Thursday 12th July 2007.

⁶⁹ The Austral Foundation. 2007. *Review and analysis of Fiji's conservation sector. Final report.* [Report authors Annette Lees and Suliana Siwatibau]

176. The Protocol seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology by establishing an advance informed agreement procedure. This procedure ensures that countries are provided with the information necessary to make informed decisions before agreeing to the import of living modified organisms. The Protocol contains reference to a precautionary approach and also establishes a Biosafety Clearing-House (BCH) to facilitate the exchange of information on living modified organisms and to assist countries in the implementation of the Protocol.

177. The Meeting of the Parties to the Protocol (COP-MOP) adopted a reporting format (available on their website) and requested Parties to submit reports every four years, but in the initial four-year period to submit an interim report two years after entry into force of the Protocol. The first interim report was due on 11 September 2005 and the first regular national report was due on 11 September 2007. As far as I can ascertain (from the website), Fiji has not yet submitted either report.

178. With funding from the UNDP-GEF project 'Building Capacity for Effective Participation in the Biosafety Clearing House (BCH) of the Cartagena Protocol', Fiji conducted its first national Biosafety Clearing House Taskforce workshop in May 2008. The objective of the workshop was the setting up of Fiji's BCH system and management, an overview of the BCH project and identifying the needs of the BCH project in 2008. A **National Biosafety Sub-committee** was established, comprising the ministries of Justice, Agriculture (Quarantine) and Health, the Customs Authority (border control), and the Consumer Council of Fiji.

179. A second workshop is about to be conducted (September 2008). The purpose of this workshop is to train national authorized users on how to enter and retrieve information on living modified organisms (LMO) and genetically modified organisms (GMO) on/to the international biosafety website⁷⁰ that is hosted by UNEP (United Nations Environment Programme) in Geneva. The participants at the workshop will include the National Biosafety Task-force and remaining stakeholders: Department of Fisheries, Department of Forestry (including the Koronivia Research Station), Agriculture (Quarantine), Health, the Office of the Attorney-General, Institute of Applied Sciences of USP, National Food and Nutrition Committee, the Consumer Council of Fiji, Fiji School of Medicine, Ministry of Foreign Affairs, Ministry of Home Affairs (Security), Customs Authority, Department of Environment and Department of Lands (Lands and Information Systems).

180. In April 2008, a taskforce at the Attorney-General's Chambers examined existing legislation, determining that whereas there is a draft biosafety bill, it does not cater for biosecurity. In addition to the lack of legal provision, an identified problem is that different reservoirs of information on biosecurity and biosafety exist in Fiji: each border control and/or relevant resource organisation has its own data and so far it has not been shared. These matters were addressed in October 2008 when the Fiji Cabinet approved a Bio-security Promulgation⁷¹; in turn, the passage of this promulgation enables the reorganization of the Quarantine and Inspection Department (QID) into a statutory authority to be referred to as the Bio-security Authority of the Fiji Islands. The Bio-security Promulgation repealed the Animals Importation Act (Cap. 159); Animals (Contagious Diseases) Act (Cap. 160); Plant Quarantine Act (Cap. 156) (Appendix Eleven) and so combines both animal and plant quarantine under the Bio-security Authority.

⁷⁰ The relevant website is www.cbd.int/biosafety/ and from there follow the links to the Biosafety Clearing House, BCH.

⁷¹ 'Cabinet approves Bio-security law'. *The Fiji Daily Post*, 8 October 2008

6.2 Areas of Action

- Hosting of the second national workshop (above).
- Production of awareness-raising material, such as posters, TV and radio advertisements – planned for December 2008.
- Purchasing equipment to facilitate the BCH project
- BCH Taskforce to conduct a third workshop to aimed at reviewing the project and the associated awareness programmes
- Production of a National Biosafety Framework. The Global Environment Facility (GEF) Initial Strategy on Biosafety was adopted in November 2000 and commenced in June 2001. The Strategy aims to assist countries prepared their National Biosafety Frameworks (NBFs) so that they can comply with the Cartagena Protocol. A NBF is a combination of policy, legal, administrative and technical instruments that are set in place to address safety for the environment and human health in relation to modern biotechnology.
Fiji has not yet (August 2008) completed its National Biosafety Framework.⁷²

6.3 Capacity Needs / Recommendations for Fiji⁷³

1. Systemic Capacity

- Development of adequate Biosafety legislation that will enable implementation at the border control level with regard to Biosafety.
- Development of an MOU between different border control organisations (the Customs Authority, Quarantine and Health have been specifically identified) and the Department of Environment so that information can be shared – ‘co-sharing’ – and enhance effective application of legislation.

2. Institutional Capacity

- Ensuring that there are full-time staff to work on the project (presently there are only two half-time staff in the Department of Environment are available to work on biosafety issues). Meeting this recommendation should ensure the DOE is able to undertake monitoring, reporting and compliance requirements
- Securing adequate finance
- Recruitment of a legal draftsman (the drafter of Fiji's draft biosafety bill is identified) to modify and complete an appropriate biosafety bill for Fiji.
- Developing a national biosafety database.

⁷² <http://www.unep.org/biosafety/National%20Biosafety%20frameworks.aspx> – accessed September 2008.

⁷³ The BCH website identifies common capacity needs in areas of compliance, finance (in Fiji, the UNDP-GEF has provided funding sufficient to cover the remainder of 2008, but after that there is no identified source of funds), handling, transport, packaging and identification, liability and redress, monitoring and reporting, risk assessment and management, and access to information (e.g. roster of experts). According to the Biosafety website there is one Cartagena Protocol on Biosafety expert in the Pacific (in Samoa).

APPENDIX ONE

Acronyms, Thematic Assessment

ACP – African, Caribbean and Pacific
AGO – Office of the Attorney-General
AIA – Advance Informed Agreement
ALTA – Agricultural Landlords and Tenancy Agreement
AusAID – Australian Government overseas aid programme
BCH – Biosafety Clearing House
BI – Birdlife International
BPoA – Barbados Plan of Action
BQA – Bilateral Quarantine Agreement
CBD – Convention on Biological Diversity
CBO – Community-based Organisation
CI – Conservation International
CITES – Convention on International Trade in Endangered Species
COP – Conference of the Parties
CRISP – Coral Reef Initiative in the South Pacific
CSD – United Nations Commission on Sustainable Development
DCE – Department of Customs & Excise
DFI – Department of Fisheries
DFO – Department of Forestry
DoA – Department of Agriculture
DoE – Department of Environment
DoT – Department of Tourism
EU – European Union
FAB – Fijian Affairs Board
FHC – Fiji Hardwoods Corporation
FLMMA – Fiji Locally Managed Marine Areas (network)
FM – Fiji Museum
FMAC – Fiji Marine Aquarium Council
FPCL – Fiji Ports Corporation Limited
FSC – Forest Stewardship Council
FSPI – Foundation of the Peoples of the South Pacific International
GCRMN – Global Coral Reef Monitoring Network
GEF – Global Environment Facility
GLOMIS – Global Mangrove Database and Information System
GMO – Genetically modified organism
GTZ – German Technical Cooperation
IAS – Institute of Applied Sciences, The University of the South Pacific
ICM – Integrated Coastal Management
ILO – International Labor Organisation
IOI – International Oceans Institute
ISSG – Invasive Species Specialist Group
ITTO – International Tropical Timber Organisation
IUCN – International Union for the Conservation of Nature
JICA – Japan International Cooperation Agency
LMMA – Locally Managed Marine Areas (network)
LMO – Living modified organism
MAAF – Ministry of Agriculture, Forestry & Fisheries (should be MAFF)
MAFF – Ministry of Agriculture, Forestry & Fisheries
MDG – Millenium Development Goals
MEA – multi-lateral environment agreement
MES – Mamanuca Environment Society

MOA – Memorandum of Action
 MOE – Ministry of Education
 MoF – Ministry of Finance
 MOU – Memorandum of Understanding
 MoW – Ministry of Women, Culture & Social Welfare
 MPA – Marine Protected Area
 MRD – Department of Mineral Resources
 MSc – Master of Science
 MSP – Marine Studies Programme, USP
 NBF – National Biosafety Framework
 NBSAP – National Biodiversity Strategy and Action Plan
 NCSA – National Capacity Self Assessment
 NCSD – National Committee on Sustainable Development
 NEC – National Environment Council
 NFMV – NatureFiji/MereqetiViti
 NGO – Non-Government Organisation
 NLTB – Native Land Trust Board
 NT – National Trust of Fiji
 PABITRA – Pacific Asia Biodiversity Transect network
 PACE – Pacific Centre for Environment and Sustainable Development
 PACINET – Pacific Island [sic] Partnership Network for Taxonomy
 PCDF – Partners in Community Development
 PCOC – Pacific Council of Churches
 PIC – Pacific Island countries
 PII – Pacific Invasives Initiative
 PILN – Pacific Invasives Learning Network
 POP – Persistent organic pollutants
 PoW – Program of Works
 PRV – Private sector
 SBWG – Sovi Basin Working Group
 SCOP – Secretariat to the Conference of the Parties
 SIDS – Small Island Developing States
 SOPAC – Pacific Islands Applied Geosciences Commission
 SPC – Secretariat of the Pacific Community
 SPREP – Pacific Regional Environment Programme
 SPRH – South Pacific Regional Herbarium
 SPRIG – South Pacific Regional Forest Genetic Resources Group
 TNC – The Nature Conservancy
 UNCA – Upper Navua Conservation Area
 UNCBD – United Nations Convention on Biological Diversity
 UNDP – United Nations Development Programme
 UNEP – United Nations Environment Programme
 UNESCO – United Nations Environment, Scientific and Cultural Organisation
 USA – United States of America
 USAID – United States Agency for International Development
 USP – The University of the South Pacific
 WCS – Wildlife Conservation Society
 WHO – World Health Organisation
 WI-O – Wetland International Oceania
 WSSD – World Summit on Sustainable Development
 WWF (FCP) – World Wide Fund for Nature, Fiji Country Program
 WWF (SPP) – World Wide Fund for Nature, South Pacific Program

Appendix Two

Guiding Principles of Fiji's NBSAP

The conservation and sustainable use of Fiji's biodiversity is the foundation for all developments and for ensuring inter-generational equity.

Biodiversity conservation is central to sustainable use of biological resources.

Biodiversity conservation is a collective responsibility of all levels of government, the private sector, resource users and landowners.

Biodiversity conservation in Fiji is greatly dependent on the manner in which landowners and local user communities choose to manage their land holdings and fishing rights ownership.

Control of local resources by traditional resource owners and users is critical to the success of biodiversity conservation.

Biodiversity conservation initiatives ensure that local communities and both men and women have continued access to the resources required to meet subsistence needs.

That although communal land ownership has played, and continues to play a positive role in biodiversity conservation, the increasing commercialisation of natural resource use is threatening this system and constitutes a major challenge to biodiversity conservation.

Biodiversity is best conserved in those places where it naturally occurs, however ex-situ conservation may be needed to assist in the conservation management of threatened species or forms.

The establishment of a comprehensive and representative system of reserves and conservation areas at the national and local levels is critical to successful biodiversity conservation.

The conservation and sustainable management of Fiji's natural forests is the single most important means of conserving the vast majority of Fiji's endemic fauna and flora.

The conservation and sustainable management of Fiji's reefs, lagoons and mangroves as well as its freshwater habitats are of critical significance to sustaining the traditional livelihoods of the majority of Fiji's rural communities.

The control of invasive organisms is critical to the success of biodiversity conservation.

Improved scientific knowledge of biodiversity and enhanced ethnobiological understanding is required for improved conservation management and sustainable use.

Inadequate knowledge should not be used to defer or prevent biodiversity conservation.

Biodiversity conservation is a specialised discipline which requires advanced training, skills and international collaboration.

Education, public awareness and local knowledge are essential for enabling the conservation of biodiversity.

The principle of polluter and/or user pays be adhered to when assessing responsibilities relating to the use and conservation of biodiversity.

Biodiversity conservation initiatives should be implemented in a way that local communities – men and women and youth – are actively involved in the planning, implementation, monitoring and evaluation.

The intellectual property rights to biodiversity, genetic resources, bio-derivatives and knowledge about biodiversity be recognised and that appropriate mechanisms adopted to ensure, henceforth, fair remuneration, credit or other benefits are received by local communities, the discoverer or developer, and the nation.

Appendix Three

Environment statement in Fiji's Millenium Development Goal report, 2004

Goal 7: Ensure environmental sustainability

Target	Indicator	Status of Progress			
		± 1990	± 1995	± 2000	Latest ³
9. Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources	25. Proportion of land area covered by forest	48.9 %	⁴ n.a	. 44.6 % ³	n.a.
	26. Ratio of land area protected to maintain biological diversity to surface area	9136.4 ha ⁷	9256.4 ha ⁷	9256.4 ha ⁷	9306.4 ha ⁷
	27. Energy use (kg oil equivalent) per \$1 GDP (PPP)	n.a.	n.a.	9.3	n.a.
	28a. Carbon dioxide emissions per capita	1.52.	n.a.	1.02	n.a.
	28b Consumption of ozone-depleting CFCs (ODP tons)	38 ⁹	n.a.	9 (1999) ⁹	n.a.
	29. Proportion of population using solid fuels	80% rural 30% urban	48%	n.a.	n.a.
10. Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	30. Proportion of the population with sustainable access to an improved water source, urban and rural	n. a.	National:92.7% Urban: 97.5% Rural: 65-82%	n.a.	96.1% (urban) (2002)
	31. Proportion of the population with access to improved sanitation, urban and rural	93% (1993)	National: 98.8% ⁵ Urban: 99.8% Rural: 97.9	n.a.	National: n.a Urban 75 Rural 12
11. By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	32. Proportion of people with access to secure tenure	n.a.	National-83.5% Urban -86.7% Rural -80.7%	n.a.	n.a.

Sources: ¹ UNDP, 1994; ² Urban HIES, 2002; ³ ADB, 2003; ⁴ Dept Forestry, 1989; ⁵ Bureau of Statistics, from 1996 Census; ⁶ National Nutrition Survey, 1993; ⁷ D. Watling; ⁸ SOPAC estimations; ⁹ SPC, 2004.

25. Proportion of land area covered by forest

Measuring change

The most recent forest inventory in Fiji was conducted in 1992. The land area covered with forest can now also be measured by satellite imagery. A recent set of images is held by the Ministry of Fisheries and Forests, and a partial set is held by SOPAC. The definition of forested areas used for Indicator 25 does not fully correspond to the definition proposed by the UN, as it includes all forest types (including mangroves, dry and wet woodlands and coconut and broadleaf forest areas) but excludes forest plantations and any bare land.

General progress

The three main types of forest in Fiji are indigenous forests, plantations of pine and plantations of exotic hardwoods (mahogany: *Swietenia macrophylla*). The pine plantations have been planted over the past few decades mostly on degraded grassland that had little other use. The pine forest now covers around 43,000 hectares and provides an important export. Government is now developing the mahogany industry, to harvest and market this valuable resource. Largely because of the development of these plantations, Fiji's rate of deforestation has been slow. Since the 1970s, Fiji has lost less than one per cent annually of its forest area to non-forest uses. The main sources of this conversion have been:

- Large-scale commercial agricultural projects;
- The continuing expansion into the forest of smallholder mixed subsistence-commercial farmers;
- The continuing spread of settlement, urban growth and infrastructure; and
- Fire.

26. Ratio of land area protected to maintain biological diversity to surface area

Measuring change

The only areas that have legal standing as conservation areas are the nature reserves and the National Park at Sigatoka. Several other areas have been set aside for biodiversity protection but not gazetted include Koroyanitu near Nadi and Bouma in Tavenuni. The conservation purpose of these areas will be recognized in Fiji law once the Environment Management Bill completes its passage through Parliament. One category of protected lands is forest reserves. Some natural forest areas have been converted to plantation forest, so contributing to the decline in forest biodiversity.

General progress

The 1993 National Environment Management Strategy set out a plan to establish comprehensive heritage protection, since the nature reserves were legally recognized, the area of land protected for biodiversity conservation has been only informally enlarged by the addition of small project areas.

Table 14 Protected areas in Fiji	
National Park	Year of Establishment Area (ha)
Sigatoka Sand Dunes	1988 240
Nature Reserves (Forestry Act)	
Ravilevu	1959 4020
Naqarabuluti	1958 279
Draunibota, Labiko	1959 2.16
Nadarivatu	1956 93
Tomaniivi	1958 1322
Vuo	1960 1.2
Other Protected Areas (secure)	
JH Garrick Memorial Park	1986 428
Namenalala island	1984 43
Yadua Taba island	2004 50
Other Protected Areas (without legal security)	
Coloisuva Amenity Park	1952 91
Bouma National Heritage Park	1990 1417
Koroyanitu National Heritage Park	1989 1200
Waisali Protected Area	1991 120

Source. D. Watling, pers. comm..

27. Energy use (kg oil equivalent) per \$1 GDP (PPP)

Measuring change

This ratio of GDP (in 1995 US\$ PPP) to commercial energy use (measured in kg of oil equivalent) gives a measurement of energy efficiency. A value could only be calculated for 2000 as there are no GDP PPP calculations for other years. The Pacific region is participating in an international commodity pricing survey, which should allow PPPs to be calculated. Energy efficiency has not previously been measured in this manner in Fiji or other countries of the region.

General progress

Fiji ranks higher than most other Pacific island countries in regard to energy efficiency (SOPAC, 2004)

28. Carbon dioxide emissions per capita and consumption of ozone depleting CFCs (ODP tons)

Measuring change

In line with its commitments to the Climate Change Convention, Fiji has conducted an emission inventory and compiled a country report on national progress towards meeting the goals of the Convention.

General progress

Importation of CFCs has been controlled by legislation since 2000. Importation of R-12 was banned but quantities already within Fiji (mostly in old refrigerators and vehicle air-conditioning systems) can be reused until 2010. The Act requires licences and permits to be applied for and issued.

29. Proportion of population using solid fuels

Measuring change

Information on household use of cooking fuels is provided by the 1996 census. There have been no other surveys conducted since the mid 1980s to determine solid fuel consumption in Fiji or other countries of the region.⁴² Taking the categories of 'wood stove,' 'wood open fire,' and 'other', 48 per cent of households used solid fuel for cooking in 1996. The estimate for 1990 was provided by SOPAC and references surveys carried out in various Pacific island countries in the mid 1980s.

General progress

This was a considerable reduction in the percentage of households using wood for cooking fuel, from 63 per cent in 1986 to 48 per cent in 1996. The main switch was to using LPG gas which more than doubled, from 13 per cent of households in 1986 to 28 per cent in 1996. In 1986, wood was used by 88 per cent of rural households and 27 per cent of urban households, kerosene then being the most popular cooking fuel for urban dwellers.

30. Proportion of the population with sustainable access to an improved water source, urban and rural

Measuring change

An improved water source for drinking water includes household connections, public standpipes, boreholes, protected dug wells, protected springs and rainwater collection. Reasonable access means the availability of at least 20 liters per person per day from a source within one km of the user's dwelling.

National data on access to a water source comes from the 1996 census and the 2002-3 HIES.

Until 1997, the Ministry of Health was reporting annual figures on this access but has discontinued this since, as there was no clear source for this information. The census reports only on the type of supply used by each household, not the amount of supply or distance from the dwelling.

General progress

The types of water supply reported in the census included metered, communal standpipe, roof tank, well, river or creek, and other. Taking 'river or creek' and 'other' to represent inadequate access, 7.3 per cent of households in 1996 had inadequate access to clean water for drinking. According to data from the 2002 urban HIES, access of urban households to assets and services has improved since the 1996 census³ The HIES reports that 96.1 per cent of urban households had access to safe water, compared with 92.9 per cent in 1996. This is down from 96.4 per cent in 1986, a decline that reflects the growing pressure on infrastructure from population growth.

A recent ADB survey of access to opportunities (using the categories of most access, moderate access and least access) found that rural villages and settlements were the most disadvantaged in almost all regards, particularly water supply and sanitation. In rural settlements over one-third of households were without safe water and almost three-quarters had no improved sanitation system.

31. Proportion of the population with access to improved sanitation, urban and rural

Measuring change

Improved sanitation is defined as adequate excreta disposal facilities, eg. connection to sewer or septic tank system, pour-flush latrine or other type of latrine. The only national data on access to sanitation facilities comes from the census.

As with access to clean drinking water, the Ministry of Health stopped reporting annual figures on access to sanitation in 1997 as there was no clear source for this information.

General progress

The types of facilities reported in the census are flush toilets, sealed privies, pit latrines, none and other. Taking 'none' or 'other' to represent inadequate access, only 1.2 per cent of households in 1996 had inadequate access to sanitation, similar to the 1.3 per cent in 1986. Discounting pit toilets, however, the numbers rose from 57 per cent in 1986 to 73 per cent in 1996.

32. Proportion of people with access to secure tenure

Measuring change

Secure tenure is defined by the UN as households that own or are purchasing their own homes, are renting privately, or are in social housing or sub-tenancy. According to the 1996 census, 83.5 per cent of households had such secure tenure, including 86.7 per cent of urban households and 80.7 per cent of rural households. However, this definition does not fully reflect the nature of tenure security in Fiji. Generally, although many households may own or rent their home, many urban and some rural households live in insecure conditions in that they do not own the land on which they are 'squatting'. The issues of tenure security are complex in Fiji and pertinent to patterns of economic change and poverty. The UN definition requires some adjustment in order to better reflect Fiji conditions.

General progress

Many urban dwellers of all ethnic groups lack secure tenure. Surveys conducted for the Fiji Poverty Report in the mid 1990s found that around 20 per cent of urban households lived in informal, or 'squatter' housing, often with inadequate sanitation and water supply. There are very limited provisions for public housing for low-income families. According to the 2002 HIES, 26.5 per cent of the urban population lived in settlements and a further 10.3 per cent lived in squatter areas.

Many rural households in Fiji also face insecure tenure. In the late 1990s, the first of some 22,000 agricultural leases, most held by Indian farmers in the sugar-cane districts, began to expire, putting both the farmers and the sugar industry in an uncertain situation.

Appendix Four

Environment statements in recent Strategic Development Plans

GOVERNMENT OF FIJI

Sustainable Economic and Empowerment Development Strategy (SEEDS) 2008-2010

“A Better Fiji for All”

November 2007 (Current Government)
Ministry of Finance, National Planning & Sugar Industry
Suva, Fiji.

2.2.6 Environmental Sustainability

“Ensuring environmental sustainability” is the seventh MDG, which provides a framework for integrating the principles of Sustainable Development into national policies, thus ensuring availability of safe drinking water, improving sanitation, and reducing other social ills such as poverty and unemployment.

Achieving sustainable development, while overcoming environmental challenges such as deforestation, land degradation, logging of watersheds, over-exploitation of terrestrial and aquatic biological resources, improper waste management and pollution control, impact of climate change, and the attitude of people in terms of the unsustainable use of their resources, is a central challenge of this plan.

Increasing population, urbanization, industrial, agricultural and other economic development have placed increasing pressure on coastal zones leading to loss of habitat and affecting ecological processes. This is a result of coastal development, pollution, increased water demand from freshwater lenses, over exploitation of resources and other related issues. The absence of consistent monitoring of development within coastal zone development makes it difficult to assess the extent and seriousness of damage and degradation in coastal zones of Fiji.

The discharge of untreated or inadequately treated wastewater from the industrial and agricultural sectors, and increased sewage discharge causes harmful effects to the environment and to human health. The impacts of which result in changes to the ecosystems, reduction in economic value of resources, aesthetic damage, and poses human health risks. Contaminants of concern that are present in wastewater include pathogens (micro-organisms), nutrients, heavy metals, hazardous chemicals, suspended solids, and oil and grease.

The Department of Environment, in partnership with other Government Ministries and Departments, Institutions NGOs and through donor funding, has implemented various environment programmes throughout Fiji related to biodiversity conservation, sustainable biological resource use, climate change, waste and pollution, development control and other programmes related to Fiji’s obligations under regional and multilateral agreements. The production of **Fiji’s National Environment Strategy**, the **State of the Environment Report**, National Biodiversity Strategy and Action Plan, National Land Use Policy (Land Use Department, 2005), the First National Communication on Climate Change Strategic Actions (2005), National Solid and Liquid Waste Management Strategy (2006), Endangered and Protected Species ACT (2002), Environment Management Act (EMA) 2005 and the scheduled Litter Act for 2008 will provide a framework for sustainable management of land and water resources.

The Environmental Management Act (EMA) 2005 which provides the sustainable development of land and water resource management sets out the following:

- The setting up of a National Environment Council (NEC) to coordinate the formulation of environment related policies and strategies;

- The requirement for Environment Impact Assessments to be binding on all parties, including Government;
- Permits to discharge waste and pollutants into the environment;
- National Resource Inventories, National Resource Management Plan, National State of the Environment Report, and the National Environment Strategy; and
- Declarations, enforcement orders, stop work notices to ensure environmental compliance according to the EMA requirements.

The Department of Environment has been implementing the Ozone Depleting Substances Act 1998 and its Regulations (2000). With this legislation, DoE regulates the import, export, sale, storage and use of ozone depleting substances (ODS), such as refrigerators and air-conditioning gases, to give effect to Fiji's obligation under the Vienna Convention for the protection of the Ozone layer and the Montreal Protocol on substances that deplete the Ozone layer. Government had endorsed Fiji's methyl bromide phase out action plan, one of the ozone depleting chemicals, and the management plan for total phasing out of methyl bromide and chlorofluorocarbon (CFC) by 2010.

Development Constraints and Challenges

The major environmental problems include: deforestation, land degradation, air and water pollution, inappropriate refuse disposal, climate change and sea-level rise, outdated legislation and its inadequate enforcement, and limited public awareness. It is hoped that the implementation of the EMA and related programmes, and allocation of adequate resources, will assist in addressing some of these issues.

The challenges that will be faced while implementing EMA include the absence of accredited laboratories in the country. Currently only one laboratory has been accredited, that of the Institute of Applied Sciences of USP, and the accreditation is only for a limited range of parameters. There is an urgent need to address this gap in country to avoid high costs of foreign laboratories. Accredited laboratories will enable better environmental monitoring and enforcement.

GOVERNMENT OF FIJI

Strategic Development Plan 2007-2011, November 2006

2.7 Environmental Sustainability

"Ensuring environmental sustainability" is the seventh MDG, which provides a framework for integrating the principles of Sustainable Development into national policies, thus ensuring availability of safe drinking water, improving sanitation, and reducing other social ills such as poverty and unemployment.

Achieving sustainable development, while overcoming environmental challenges such as deforestation, land degradation, logging of watersheds, over-exploitation of terrestrial and aquatic biological resources, improper waste management and pollution control, impact of climate change, and the attitude of people in terms of the unsustainable use of their resources, is a central challenge to governments of small island states such as Fiji.

Increasing population, urbanization, industrial, agricultural and other economic development have placed increasing pressure on coastal zones leading to loss of habitat and affecting ecological processes. This is a result of coastal development, pollution, increased water demand from freshwater lenses, over exploitation of resources and other related issues. The absence of consistent monitoring of development within coastal zone development makes it difficult to assess the extent and seriousness of damage and degradation in coastal zones of Fiji.

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pathogens (micro-organisms), nutrients, heavy metals, hazardous chemicals, suspended solids, and oil and grease.

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The key features of the EMA 2005 are:

- The setting up of a National Environment Council (NEC) to coordinate the formulation of environment related policies and plans;
- The requirement for Environment Impact Assessments to be binding on all parties, including Government;
- Permits to discharge waste and pollutants into the environment;
- National Resource Inventories, National Resource Management Plan, National State of the Environment Report, and the National Environment Strategy; and
- Declarations, enforcement orders, stop work notices will ensure environmental compliance according to the laws.

Government has endorsed the Fiji Biodiversity Strategy Action Plan (2003), with implementation being ongoing through various Government Ministries and Departments, Institutions and NGOs. Through such partnerships, **the Ministry of Environment is conducting research programmes to identify areas of high biodiversity and sustainable productive areas**, such as Marine Protected Areas (MPA), which are being recommended for protection. In Fiji, 177 out of 189 sites have been identified as MPA (area coverage of 7000 sq. meters of Qoliqoli area). Kadavu is legally gazetted while the rest have traditional ban (Taboo) imposed. It is envisaged that these areas will be added attractions, as they convert to marine parks bringing economic benefit to the resource-owners, whilst conserving the natural heritage and habitat.

Solid and Liquid Waste Management strategies has also been developed. The extension of urban boundaries and the incorporation of new towns had seen an increasing demand for waste management in urban areas. Since the Naboro Landfill caters for Suva-Nausori area, rural areas have no proper waste management systems. They either use their backyards or mangroves as dumpsites. A rural waste management policy is being developed under the International Waters Programme. As part of the policy an economic evaluation research is being done to estimate the economic costs of the current, liquid and solid waste management systems in the Rewa Province, including health and amenity costs and to identify and evaluate alternative waste management options for households in rural areas. MoE has worked the squatter waste management in the Wailea Squatter Settlement and hopes to replicate the best practices to other squatters in Fiji.

The Ministry of the Environment has been implementing the Ozone Depleting Substances Act 1998 and its Regulations (2000). With this legislation, MoE regulates the import, export, sale, storage and use of ozone depleting substances (ODS), such as refrigerators and air-conditioning, to give effect to Fiji's obligation under the Vienna Convention for the protection of the ozone layer and the Montreal Protocol on substances that deplete the ozone layer. Government had endorsed Fiji's methyl bromide phase out action plan, one of the ozone depleting chemicals, and the management plan for total phasing out of methyl bromide and chlorofluorocarbon (CFC) by 2010.

Development Constraints and Challenges

The major environmental problems include: deforestation, land degradation, air and water pollution, inappropriate refuse disposal, climate change and sea-level rise, outdated legislation and its inadequate enforcement, and limited public awareness. It is hoped that the implementation of the Environment

Management Act and related programmes, and allocation of adequate resources, will assist in addressing some of these issues.

The challenges that will be faced while implementing EMA include the absence of accredited laboratories in the country. Currently only one laboratory has been accredited, which is the Institute of Applied Sciences of USP, and the accreditation is only for a limited range of parameters. There is an urgent need to address this gap in country to avoid high costs of foreign laboratories. Accredited laboratories will enable better environmental monitoring and enforcement.

GOVERNMENT OF FIJI Strategic Development Plan, 2003-2005, November 2002

5.7: Environment – Goal: the sustainable use of all natural resources

The proper management of the environment and sustainable use of natural resources are critical for the sustainable development of Fiji's largely natural resource based economy. Uncontrolled and poorly planned development practices in the past have resulted in many environmental problems. Adequate enforcement of legislation and increased public awareness and appropriate actions and activities aimed at changing people's attitudes will be emphasized to minimize continuing damage to the environment.

Fiji's environment is relatively fragile due to location, smallness and geographic isolation. The country is characterized by diverse ecosystems: marine, land and coastal and richly endowed with natural resources. Fiji's vegetation and wildlife species are relatively small in number but are of exceptional scientific and genetic interest because of the high proportion of endemic forms. Our coastal zone is of vital importance for it brings together a unique assemblage of resources such as reefs, mangroves, water, arable land, seafood and high quality landscape.

Fiji's main environmental problems are: land degradation, air and water pollution, refuse disposal, climate change and sea level rise. Expansion of agricultural lands is the principle cause of land degradation. To address Fiji's environmental problems, Government has drafted the Sustainable Development Bill to provide the framework for the management of our environment and ultimately to address various environmental issues and concerns. The bill will provide policing of activities that bring about depletion of the natural environment. Of particular importance, the Bill will require that Environmental Impact Assessments be conducted for all developments.

Fiji is a signatory to numerous international environmental and resource conventions that place considerable responsibility on the Government at national and international levels with regard to environmental issues. The ratification of these conventions has enabled Government to undertake numerous projects and programmes at the national level with relevant technical assistance being provided by various international and regional organisations. Government has also committed to achieving the Millennium Development Goals, which include Environmental Sustainability, and the World Summit on Sustainable Development (WSSD) Plan of Implementation.

Although Fiji is faced with numerous environmental problems, it is fortunate that it lacks the serious demographic, economic and industrial pressures from which the majority of serious environmental problems originate in other countries. It has a generally mild climate, is richly endowed with natural resources, has a small population with low population growth, a relatively pest free and a relatively unpolluted environment due to the absence of high polluting industries.

Policy Objectives	Key Performance Indicators
To minimize degradation of natural resources and protect biodiversity.	<ul style="list-style-type: none"> * Sustainable Development Bill enacted and implemented by 2004. * Marine Prevention Pollution Bill by enacted and implemented by 2004. * Fiji Biodiversity Strategy Action Plan endorsed and implemented by 2003. * National Implementation Strategy and First National Communication to the Framework Convention on Climate Change endorsed by 2003. * National controls on coral harvesting by 2003. * Mangrove Management Plan reviewed by 2003. * 2 nature parks and walkways by 2004. * 2 marine parks by 2004.
To maintain a healthy and clean environment through the reduction and elimination of pollution and proper management of wastes.	<ul style="list-style-type: none"> * National Analytical Laboratory established by 2003. * No litter due to enforcement of Litter Decree by 2003. * Vehicle emission levels reduced by 50 percent by 2005. * Alternative bio fuel identified by 2005. * Total suspended particles level in atmosphere to be below 60-90ug cubic metres by 2004. * Naboro waste disposal facility commissioned by 2003. * Use of adulterated fuel banned by 2004.
To raise awareness of the importance of sustainable development.	<ul style="list-style-type: none"> * National accounts framework that takes account of natural resource depletion and environmental degradation established by 2004. * Public awareness programmes on the Sustainable Development Act conducted. * Improved coverage of environmental issues in school curriculum by 2004
Initiate environmental audit in organisations' operations.	<ul style="list-style-type: none"> * Environmental audit in public organisations to begin by 2004

APPENDIX FIVE

List of international conventions, treaties and protocols relevant to the environment that Fiji has signed, or has overlooked. Information for this table was gathered from various sources including the Internet, individual experts, various reports, The Austral Foundation (2007) and The National Environment Strategy Fiji (1993) (references below). Note (1) dates of signing and/or ratifying are sometimes approximate; and (2) the Department of Environment was unable to readily provide all of this information, particularly those agreements pertaining more to fisheries and forestry.

No.	Name of Convention	Date Ratified
1	Rio Declaration on Environment and Development (1992)	1992
2	Convention on Biological Diversity (1992)	1993
3	Stockholm Convention on Persistent Organic Pollutants (2004)	2001
4	Convention on International Trade in Endangered Species on Wild Fauna and Flora (CITES) (1973)	1997
5	United Nations Framework Convention on Climate Change (Kyoto Protocol) (1992)	1992
6	Cartagena Protocol on Biosafety (2000)	2001
7	United Nations Framework Convention on Climate Change (1997)	1992
8	Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR 1971)	2006
9	International Convention on the Regulation of Whaling (1946)	no
10	United Nations Framework Convention to Combat Desertification (1994)	1998
11	Convention for the Protection of the World Cultural and Natural Heritage (World Heritage, 1972)	1991
12	Convention on the Conservation of Migratory Species of Wild Animals (CMS Bonn, 1979)	no
13	Agreement for the Implementation of the Provisions of UNCLOS of 10/12/82 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (1995)	1995
14	Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean	2000
15	United Nations on the Convention of the Law of the Sea (UNCLOS 1982)	1982
16	Stockholm Declaration of the United Nations Conference on the Human Environment (1972)	2001
17	International Tropical Timber Agreement (1994)	Yes (date uncertain)
18	Statement of Forest Principles, Rio de Janeiro (1992)	1992
19	Convention to Ban the Importation in the Forum Island Countries of Hazardous and Radioactive Waste and to Control the Transboundary Movement and Management of Hazardous Waste within the South Pacific Region (Waigani 1995)	1996
20	Convention on the Prohibition of Fishing with Long Drift Nets in the South Pacific (1989)	1994
21	Convention on Conservation of Nature in the South Pacific Region (Apia Convention, 1976)	1989
22	Washington Declaration on Protection of the Marine Environment from Land-Based Activities (1995)	no
23	Convention for the Protection of the Natural Resources and Environment of the South Pacific Region and Related Protocols (Noumea Convention, 1986)	1989

No.	Name of Convention	Date Ratified
24	Convention on Fishing and Conservation of Living Resources of the High Seas (1958)	1970
25	International Plant Protection Convention (1956?/1999?)	2005?
26	Convention on the Continental Shelf (1958)	1970
27	Plant Protection Agreement for the Asia and Pacific Region (1956)	1971
28	Convention on Fishing and Conservation of the Living Resources of the High Seas (1958)	1971
29	International Convention for the Pollution of the Sea by Oil (1954)	1972
30	International Convention Relating to the Intervention in the High Seas in Cases of Oil Pollution Casualties (1969)	1975
31	International Convention on Civil Liability for Oil Pollution Damage (1969)	1975
32	South Pacific Forum Fisheries Agency Convention (1979)	1979
33	Convention on Oil Spill Preparedness, Response and Cooperation (OPRC), (1990)	no
34	<i>International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004)</i>	no
35	<i>Treaty on Fisheries Between the Governments of Certain Pacific Island States and the Government of the United States of America</i>	Yes (date uncertain)
36	<i>Niue Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region</i>	2005?
37	<i>Treaty Banning Nuclear Weapon Tests in the Atmosphere, Outer Space and Underwater</i>	1972
38	<i>Treaty on the Non-Proliferation of Nuclear Weapons</i>	1972
39	<i>Convention on the Prohibition of the Development, Production and stockpiling of Bacteriological and Toxic Weapons and their Destruction</i>	1973
40	<i>International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage</i>	1983
41	<i>South Pacific Nuclear Free Zone Treaty and Protocol</i>	1985
42	<i>Vienna Convention for the Protection of the Ozone Layer and The Montreal Protocol on Substances that Deplete the Ozone Layer.</i>	1989

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Appendix Six (a)						
Planned Actions & Implementation Framework from NBSAP 2007						
a) Focus 1: Community support - awareness, involvement, ownership						
Action	grey = identified priority action	Nominated Lead Org'n	Nominated support org'n	Who	When	Activity
Objective 1.1						
<i>Promote community support for biodiversity conservation and ecologically sustainable development through improved understanding and awareness</i>						
1	Initiate a coordinated awareness, educational and training programme for landowning and Traditional Fishing Rights Owners (TFRO) emphasising the benefits of biodiversity conservation and its links with sustainable mgt of natural resources	DoE	FAB, MAAF, NGO, NLTB, MoW	IAS, LMMA, DFI, WCS, FSPI	2000-2006	Community based closed areas in Fiji: a case study; MPAs, Kubulau; LMMA network; Waimanu
2	Encourage & assist landowners and TFRO to document their traditional biodiversity knowledge and its uses & develop their own strategies	FAB	NGO, MAFF, USP	WWF (SPP), IAS, WCS, Thaman, FSPI	1998-2006	Wetland ecosystems in Fiji; marine protected areas; Kubulau; traditional knowledge; LMMA network; Waimanu nature reserve
3	Formally adopt national faunal and floral species (after wide consultation)	NTF	FAB, USP, DoE	nil	nil	nil
4	Produce simple but comprehensive biodiversity manuals for use in primary and secondary schools	MOE	USP, DoE, NGO	Watling, SPREP	2001-2005	Book: 'Guide to the birds of Fiji and western Polynesia'; Birds of Fiji; Palms of the Fiji Islands

5	Produce informative guides translated into local languages for rural communities (?and urban?)	DoE	NGO, FAB, MAAF	Watling & Veitayaki	2006	Pocket guides: Birds of the land of Fiji; Birds of the sea and shore of Fiji [in Fijian]
6	Produce an 'Ecology of Fiji' for use at secondary and tertiary education levels	USP	DoE, MoE	nil	nil	nil
7	Undertake a publicity campaign following enactment of the SDB99 or equivalent biodiversity protection and management legislation	DOE	FAB, NGO	DoE	2005-7	Environment Management Act (2005) & Environment Management Regulations (2007)
	Objective 1.2					
	<i>Ensure that the nation and, in particular, Fiji's natural resource-owning communities receive fair, just & economic remuneration from the use of genetic material and products</i>					
8	Develop & adopt guidelines or legislation for bioprospecting & economic use of genetic material & products which incorporate fair provision for traditional knowledge & ownership	DoE	USP, MAAF, NGO, AGO	nil	nil	nil
9	Encourage collaborative research & exploration for economic uses of genetic material & products	USP	DoE, MAAF, NGO, FAB, MoE, MoW	FD, Taronga Zoo + NT, SPRH, GTZ/SPC	1999-2005	various fisheries resources; crested iguana studies; importance of forests & forest management; soil resources & hydrology of Nakavu Forest
10	Develop & adopt guidelines for all research activities which, amongst other requirements, ensure that the community owners have an understanding of and approve of the research	FAB	MAAF, EF, DoE, NGO, USP	nil	nil	nil

11	Institute joint collaboration between the business community, government, resource owners and researchers to establish economic values of the resources used by the business community	DoE	PRV, USP, NGO, FAB	nil	nil	nil
Objective 1.3						
<i>Minimise the loss and fragmentation of community-owned native forests</i>						
12	Promote the sustainable management of indigenous forest, including mangroves	DFO	FAB, DoE, SPC, NLTB, NT	NLTB, Maruia Soc, GTZ, SPC, DFO, NT, IAS, MAFF, WI-O,	1995-2006	Sovi Basin, Forest Policy, forestry certification, Drawa Forest, booklet & posters (sustainable forest management); Waisali forest biodiversity survey; sustainable forest management; awareness; volume increment; tree selection; mangroves & wetlands; Nakavu Forest; economics
13	Enact regulations or codes of practice which ensure environmental impact assessments of new logging areas and plantation establishment sites	DFO	FAB, DoE, NLTB, SPC	DFO, SPC, GTZ	2007-08	Environment Management Act & Regulations
14	Identify important forest corridors & develop mechanisms & implement forest conservation or forest restoration activities in these locations	DFO	DoE, NT, NLTB, FHC, SPC, FAB, NGO	WCS, FAB, DoE, MAFF, SPC/GTZ	1999-2006	Heritage trees; booklets & posters on forest management & community-based forest management; timber certification workshop reports
15	Encourage & support community-based natural forest restoration initiatives	DFO	DoE, NGO, NLTB, SPC, FAB	WWF(FCP), DFO, MAFF, Lau Provincial Office, Kabara communities, SPC/GTZ	1998-2007	Sustainable livelihood; Kabara forests; publications on forest inventory, management, certification, tree nurseries; community forest management; agroforestry; tree selection; volume increment in rain forests

16	Establish hardwood plantations only in areas of low biodiversity value as determined by appropriate forest survey & mapping which specifically integrate biodiversity values with other plantation criteria	DFO	NLTB, DoE, USP, NGO, FHC	DFO, SPC, GTZ	1999-2007	Forest policy statement; Forestry certification; workshop reports on forest management, sustainable use, etc.
17	Strengthen the legislative framework for Sustainable Forestry Management, through enactment of the Revised Sustainable Development Bill, specifically Part II Section 12	DoE	DFO, AGO	DFO, SPC, GTZ	2005-07	Forest policy statement; Forestry certification
18	Strengthen the capacity for strict enforcement of the National Code of Logging Practice & biodiversity conservation	DFO	DoE, NLTB, FHC	DFO, SPC/GTZ	2005-06	Forest policy statement; Forestry certification
	Objective 1.4					
	<i>Minimise the loss of aquatic resources of importance to local communities</i>					
19	Document 'tabu' & other traditional conservation & protection measures of marine resources	DFI	NGO, USP, FAB	IAS	2002	Community based closed areas in Fiji
20	Promote community awareness of the destructive influences on aquatic biodiversity of land-based activities & unsustainable harvesting practices	DoE	FAB, DFI, NGO	WWF(FCP), IAS, LMMA, FD, WCS	2000-07	marine protected areas toolkits; conservation & sustainable use of marine biodiversity; community-based closed areas; marine protected areas; Kubulau marine reserve
21	Enact regulations to provide for consultations & majority agreement of traditional fishing rights communities prior to the issue of an IDA (Inside Demarcated Area) resource use licence	DFI	DoE, FAB, AGO	LMMA, FD, WCS	2000-06	Marine protected areas; Kubulau marine reserve

22	Encourage & assist traditional fishing rights communities to actively manage their qoliqoli & to establish or reinforce protected areas, through appropriate traditional conservation measures	DFI	FAB, NGO, DoE, MoW	WWF(FCP), LMMA, FDI, WCS	2000-07	marine protected areas tool kit; conservation & sustainable use of marine biodiversity; marine protected areas; Kubulau marine network; Vatu-i-Ra heritage seascape ecosystem approach
	Objective 1.5					
	<i>Minimise the occurrence of wildfire</i>					
23	Undertake a multisectoral collaborative awareness campaign on the consequences of wildfire amongst farmers & land-owning communities	DoE	DFO, NGO, FAB	nil	nil	nil
24	Institute a system of community based control of wildfire activity	DoE	MAAF, NGO, FAB	nil	nil	nil
25	Review existing or planned fire control legislation with a view to strengthening it	DoE	NGO, DoE, NLTB, FAB, AGO, PRV	nil	nil	nil
26	Encourage any productive low-fire risk land uses in degraded grass-reed land and high fire risk locations	MAFF	NLTB, DFO, FAB, NGO	nil	nil	nil

APPENDIX SIX (b)						
		Planned Actions & Implementation Framework from NBSAP 2007				
	b) Focus 2: Improving our knowledge					
Action	grey = identified priority action	Nominated Lead Org'n	Nominated support org'n	Who	When	Activity
	Objective 2.1					
	<i>Implement a program of ethnobiological & traditional conservation practices enquiry</i>					
27	Review current published ethnobiological knowledge & undertake a coordinated nationwide program of collection of oral knowledge	FAB	DoE, MAAF, FM, USP, NGO	WWF(SPP), SPC/GTZ, individuals	1998-2000	Wetland ecosystems in Fiji; traditional ethno-biological knowledge, resource use
28	In a collaborative project with selected communities, research traditional conservation practices with a view to clarifying their applicability and/or evolutionary potential in the modern context	FAB	MAAF, DoE, FM, USP, NGO	Thaman	1998	Traditional ethno-biological knowledge, resource use & community-based biodiversity conservation in Fiji
	Objective 2.2					
	<i>Clarify the causes of and the rehabilitation needs of community-owned degraded biological resources</i>					
29	Undertake a survey of current status of biological resources, specifically those of subsistence & economic importance & those that are threatened or in need of some form of protection	DoE	USP, FAB, MAAF, NGO, SPC	BLI, WWF(SPP), DFI, WWF(FCP), WI-O, Lovell	1996-2008	Bird surveys at 20 forested sites in Viti Levu; wetlands ecosystems; sea turtle conservation; whale sanctuary; freshwater fishes; monitoring of certain reefs

30	Encourage & support initiatives to restore degraded ecosystems, in particular, those that are community-based	MAAF	DoE, FAB, NLTB, USP, SPC, NGO	IAS, WCS, BLI, LMMA, DFI, WWF(FCP), ICM, NT	2000-2006	Coral bleaching refugia; strengthening coastal management network; important bird areas book; marine protected areas; Kubulau marine reserve; Vatu-i-Ra heritage seascape; integrated coastal management; Waisali village resource management
	Objective 2.3					
	<i>Improve biodiversity studies in formal educational curricula</i>					
31	Review the secondary school curricula & if necessary, modify relevant learning areas incorporating current knowledge of Fijian biodiversity & the value of traditional ethnobiological knowledge	MOE	DoE, FAB, MAAF, NGO, USP, PRV	nil	nil	nil
32	Provide further professional development courses in biodiversity, ethnobiological knowledge & conservation for in-service teachers	MOE	DoE, NGO, USP	nil	nil	nil
33	Document & publish ethnobiological knowledge in the vernacular & in (a) form(s) appropriate for formal educational curricula	MOE	NGO, FAB, USP	nil	nil	nil
	Objective 2.4					
	<i>Achieve a detailed knowledge of the occurrence & status over time of Fiji's biodiversity resources, in particular the threatened, endemic forms</i>					

34	Undertake a comprehensive terrestrial & freshwater biodiversity resource inventory	DoE	FAB, NT, NLTB, DFO, NGO, USP	DF, GTZ, BLI, individuals; IAS, Watling, WWF, DFI, WCS, WI-O, NT, Taronga Zoo, SPRH, World Parrot Trust, Greenforce, GTZ, MAFF	1998-2006	Freshwater ecoregions in Oceania; freshwater fauna & water quality of Kubuna River; Waisali Creek fishes; priority ichthyofauna & watershed ecosystem services; training in fish taxonomy; floristic survey of native forests in Cakaudrove; inventory of Drawa Block; identification of indigenous tree species; description of rare freshwater fishes; fauna & water quality of Macuata rivers; forest inventory training; forest certification course & capacity building; training in sustainable forestry management; biodiversity of Gau highlands; various bird surveys; coral reef surveys, Sovi Basin biodiversity survey; invertebrate survey in forest reserves; forest cover analysis; fisheries resource assessment, Koroi Wai; Mamanuca and Coral Coast coral diversity; baseline survey at Yasawa Island; Vatukoula freshwater fish; Waisali Forest Reserve survey; dry forest survey of Yaduataba; crested iguana survey on Taduataba, Monu, Monuriki, Yasawas & Mamanucas; timber species in Cakaudrove; terrestrial
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						arthropod checklist; bird survey in Vanua Levu & Viti Levu forests; Nadroga mangrove survey; flora & fauna survey of Waivaka South; terrestrial vertebrate survey of Waivaka catchments; Sovi Basin flora & fauna survey; biological survey of Vatu-i-lailai marine protected area, Nadroga; Kubulau marine reserve survey; botanical study of Caudua Point resort, Namosi; plants of Makuluva Reef Islet; mangrove flora & fauna of Lomawai Reserve, Nadroga; vegetation survey of Laucala Island, Cakaudrove; mapping of Fiji petrel habitat on Gau Island
35	Undertake a comprehensive marine biodiversity resource inventory	DoE	FAB, NT, DFI, NGO, USP	MAFF, IAS, WCS, individuals; WI-O	1996-2005	Qoliqoli surveys; resource assessment of inshore fisheries; baseline survey of Champagne Beach, Yasawas; water quality and ecology of Bua Bay port development site in Bua and at Rokobili in Suva; marine baseline survey & coastal water quality study of Anchorage Beach Resort, Vuda Point; Vatu-i-Ra world heritage seascape ecology mapping; taxonomy of some marine fauna; marine biodiversity of Great Sea Reef; monitoring of reefs offshore from Lautoka

36	Draw up an appropriate framework & mechanism for monitoring the status of rare & endangered species	DoE	FAB, NT, NGO, DFO, DFI, USO, PRV	WWF(FCP), individuals	1996-2007	Sea turtle conservation strategy; whale sanctuary
37	Revive DoE's spatially-referenced biodiversity database as a working system with appropriate procedural protocols & with wide public & institutional access	DoE	DFO, FAB	nil	nil	nil
38	Commission the preparation of a bibliography & database of Fiji's insects	USP	DoE, FAB, MAAF	WCS, individuals	2002-07	checklist of terrestrial arthropods of Fiji; other taxonomic studies of beetles
	Objective 2.5					
	<i>Establish mechanisms which encourage & facilitate biodiversity research & enable Fiji to access relevant international findings & developments</i>					
39	Review Government's & USP's role in biodiversity research	DoE	MAAF, NT, USP, PRV	nil	nil	nil
40	Encourage international & private sector collaborative research on Fiji's biodiversity	DoE	MAAF, FAB, NT, USP, NGO, PRV	JICA, Watling, IAS, individuals, WCS, NT, USP, BLI, WI-O	2002-06	Cooperative mining exploration, Viti Levu south; flora survey of Upper Navua Conservation Area; crested iguana on Macuata Island, Ra; terrestrial arthropod study; flies of Fiji; whale sanctuary; important bird areas; freshwater fishes; Vatu-i-Ra world heritage seascape

41	Identify priority research requirements for biodiversity management & opportunities for developing national expertise	DoE	NT, NGO, USP, PRV	nil	nil	nil
42	Adopt a national protocol, drawing on the current USP guidelines for biodiversity research & bioprospecting regarding conduct & publication of research, & the export, buying & selling of biodiversity materials & findings	DoE	MAAF, NGO, NT, USP, PRV	nil	nil	nil
43	Establish a central professionally administered facility to house & manage the various existing biodiversity collections & to actively encourage the collection & deposition of new materials	DoE	FM, PRV, DoA, NT, NGO, MAAF, DoE	nil	nil	nil
Objective 2.6						
<i>Establish specific research programmes on Rotuma</i>						
44	Undertake comprehensive terrestrial, freshwater and marine biodiversity resource surveys of Rotuma	DoE	NT, NGO, Rotuman comm, USP	nil	nil	nil

APPENDIX SIX (c)						
		Planned Actions & Implementation Framework from NBSAP 2007				
c) Focus 3: Developing protected areas						
Action	grey = identified priority action	Nominated Lead Org'n	Nominated support org'n	Who did	When	Activity
Objective 3.1						
<i>Establish a comprehensive & representative core protected areas system</i>						
45	Establish the institutional & legislative framework for a core protected areas system in both the terrestrial & marine environments	DoE	AGO, NT, FAB, DFO, NLTB	(NLTB, Maruia Society)	1995-2006	Sovi Basin (Waimanu) conservation & development; Kubulau marine reserve
46	Secure the priority/core sites through appropriate arrangements with the current landowners or TFROs	DoE	FAB, NLTB, DFO, DFI, NT	NLTB, Maruia Society	1995-2006	Sovi Basin (Waimanu) conservation & development; Kubulau marine reserve
47	Establish secure arrangements for areas of high biodiversity conservation value outside of the core protected areas system	DoE	NLTB, FAB, NGO, DFO, DFI, NT	NLTB, Maruia Society	1995-2006	Sovi Basin (Waimanu) conservation & development; Kubulau marine reserve; priority ichthyofauna & watershed ecosystem in Fiji's forest reserves
Objective 3.2						
<i>Institutionalise the sites of national significance programme</i>						

48	Establish a consensus on the administrative & institutional framework of the sites of national significance programme	DoE	NT, NLTB, DOT, FAB, MAAF, NT	nil	nil	nil
49	Establish the institutional & enact the legislative requirements of the programme and register the sites	DoE	NLTB, FAB, MAAF, NT	nil	nil	nil
	Objective 3.3					
	<i>Effectively manage existing protected areas</i>					
50	Establish institutional control & responsibility of existing protected areas under the Government designated institution	DoE	NT, DFO, DFI, NGO	nil	nil	nil
51	Locate adequate financial & technical resources for management	DoE	NT, DFO, DFI, NLTB, NGO, PRV	nil	nil	nil
52	Prepare management plans for existing biodiversity protected areas, nature reserves and community-based eco-tourism sites	DoE	NT, DOF, USP, NGO, DOT	individuals; marine aquarium council	1995-2003	Management plans for Ravilevu Nature Reserve, Taveuni & Tomanivi Reserve, Ba; LMMAs; Kubulau marine reserve; management plan for Moturiki; aquarium fish management plan for Walt Smith International; management framework for aquarium coral trade; EIA for hard coral collection; collection management of aquarium fish

53	Encourage private, landowner or other as appropriate, participation or sole implementation of the management of biodiversity protected areas	DoE	FAB, NLTB, NT, NGO, DFO, DFI, PRV	LMMA, FD	2000 onwards	Marine Protected Areas
54	Ensure that adequate scientific knowledge is entered into strategies & plans	DoE	USP, DFO, DFI, NT, NGO	DFI, BLI, Watling, LMMA, WCS	2000-06	Management plan for Ravilevu Nature Reserve, Taveuni and Tomanivi Reserve, Ba; marine protected areas; Kubulau marine reserve; Waimanu conservation project; coral bleaching refugia
Objective 3.4						
<i>Encourage establishment of protected conservation areas in addition to the national or core protected areas system</i>						
55	Promote linkages between sustainable natural resource use & conservation area establishment	DoE	FAB, NLTB, DOF, NGO, NT, SPC	individual; DFI, marine aquarium council, LMMA	2000-05	management plan for Moturiki; aquarium fish management plan for Walt Smith International; management framework for aquarium coral trade; EIA for hard coral collection; collection management of aquarium fish
56	Encourage & assist landowners and TFROs in the establishment of their own conservation areas irrespective of their national significance	FAB	NLTB, DoE, NT, NGO	LMMA, DFI, IAS	2000-03	marine protected areas; case study of Votua in Ba - empowering local communities
57	Promote linkages with the tourism sector in the establishment, management & marketing of protected areas	DoE	FAB, NGO, PRV, DoT	LMMA, DFI, IAS	2000-05	The role of locally managed marine areas in development of eco-tourism in Fiji, marine protected areas

	Objective 3.5					
	<i>Provide adequate funding for protected area management</i>					
58	Review and establish an appropriate funding mechanism(s) for the management of priority biodiversity protected areas	DoE	Biodiversity Steering C'tee; NT, PRV	NLTB, Maruia Society, CI, NT	1995	Sovi Basin (Waimanu), Integrating conservation & development
59	Ensure meaningful participation and provide equitable incentives and remuneration to resource owners for protected area establishment and management	NLTB	FAB, DoE, DFO, DFI	NLTB, Maruia Society, CI, NT	1995	Sovi Basin (Waimanu), Integrating conservation & development

	APPENDIX (d)					
		Planned Actions & Implementation Framework from NBSAP 2007				
	d) Focus 4: Species conservation					
Action	grey = identified priority action	Nominated Lead Org'n	Nominated support org'n	Who	When	Activity
	Objective 4.1					
	<i>Effectively manage threatened species</i>					

60	Review the status of threatened species and prioritise species for conservation initiatives	DoE	MAAF, NT, NGO, USP, PRV	BLI, individuals, WI-O, DoE, MSP,	2002-07	checklists of Fiji terrestrial arthropods; important bird areas book; freshwater fishes of Fiji; Endangered & Protected Species Act 2002 & Regulation 2003; turtle population assessment techniques; network development for turtle study; mapping & assessing turtle nesting beaches, various, Fiji; regional turtle database; survey of endangered parrot finch; Coral Gardens Initiative; freshwater gobies survey; sicydiine gobies of Fiji; Yirrkala redescription; Macuata freshwater fishes & river water quality; new species of freshwater goby
61	Encourage conservation management-orientated research on threatened species to identify causes of decline	DoE	FAB, MAAF, USP	BLI, WI-O, MSP, individuals	2002-07	checklists of Fiji terrestrial arthropods; book on important bird areas; freshwater fishes of Fiji; network for conservation of turtles; turtle nesting beaches identification, various; hunting pressure assessment on turtles; turtle conservation strategy; database of turtle movements; new freshwater goby in Fiji

62	Develop a threatened species database	DoE	MAAF, USP, NT, NGO	WI-O, BLI, MSP, individuals	2002-07	checklists of Fiji terrestrial arthropods; book on important bird areas; hunting pressure assessment on turtles; turtle conservation strategy; database of turtle movements
63	Prepare threatened species management plans, to include where appropriate, linkages with best international experts	DoE	MAAF, NGO, USP, NT	MSP	2006-07	Mapping and assessment of turtle nesting beaches in Fiji, various; regional turtle database, with SPREP
64	Establish captive breeding programmes for important species and forms for which in situ conservation is problematic, either in Fiji or, if appropriate, abroad	DoE	MAAF, PRV, NGO, USP, SPC	nil	nil	nil
65	Drawing on Forestry Department's experience and capability, establish an ex situ germ plasm collection or seed bank for threatened plant species and varieties for relocation or reintroduction as appropriate	DoE	MAAF, PRV, DFO, USP, SPC	nil	nil	nil
66	Enact legislation to provide effective protection for threatened species	DoE	Biodiversity Steering Committee, AGO	DoE	2002-3	Endangered and Protected Species Act (2002) and Regulation (2003). A CITES related legislation
67	Advocate for the complete termination of the 'Game Shooting Season'	DoE	MAAF, NGO, NT	nil	nil	nil

	Objective 4.2					
	<i>Effectively manage species of cultural significance</i>					
68	Identify species of cultural significance whose status is declining and prioritise species for active management	FAB	USP, MAAF, DoE, NGO	WWF, BLI, NT, Watling, councils	1999-2005	Inventory of wetlands - Kuta growing areas; training in catch & release of petrels; protection of petrel burrows on Gau Island awareness program of petrels on Gau Island; petrel conservation & identification
69	Develop a database of culturally significant species	USP	FAB	nil	nil	nil
70	Enable communities to take the lead in the conservation of culturally significant species	FAB	DoE, NT, NGO	FSPI, WWF,	1999-2005	Inventory of wetlands - Kuta growing areas; Coral Gardens Initiative; Blue Forest initiative - coral reef biodiversity

	APPENDIX SIX (e)					
	Planned Actions & Implementation Framework from NBSAP 2007					
	e) Focus 5: Control of Invasive Species					
Action	grey = identified priority action	Nominated Lead Org'n	Nominated support org'n	Who	When	Activity
	Objective 5.1					
	<i>Reduce the risk of the introduction of invasive species</i>					

71	Strengthen relevant quarantine legislation to include consultation and participation of the Dept of Environment in the decision making processes on the introduction of organisms	MAAF	DoE, AGO, SPC	nil	nil	nil
72	Improve regional collaboration between national quarantine services and relevant regional institutions / organisations to develop regional action plans and strategies for the prevention of introduction and spread of invasive species	MAAF/DoE	SPREP, SPC, DCE, NT	nil	nil	nil
73	Adopt relevant quarantine regulations, standards and tools developed to assist in the decision making processes involved in the importation of exotic species	MAAF	DoE, USP, NT	nil	nil	nil
74	Strengthen legislation and enforce heavy penalties on individuals and organisations illegally importing organisms	MAAF	DoE, DCE, AGO, NT	nil	nil	nil
75	Develop protocols which require an EIA - Risk assessment by an independent body before the introduction of exotic species, in line with SDB99 EIA provisions	MAAF	DoE, NT	nil	nil	nil
76	Increase public awareness on the risks and impact of exotic invasive species on native ecosystems and the biodiversity of species contained therein	MAAF	MAAF, USP, DoE, NGO	BLI, USP	2006	Eradicating rats, invasive alien species (IAS) on Vatuira Island & Viwa Island; invasive fire ant awareness
77	Develop procedures or legislation to minimise the establishment of invasive species through ballast water exchange	MAAF	AGO, DoE	nil	nil	nil

	Objective 5.2					
	<i>Effectively control invasive and potentially invasive species present in Fiji</i>					
78	Establish a database of invasive species present in Fiji	MAAF	USP, NGO, DoE	nil	nil	nil
79	Review the biological effects of exotic species, in particular known invasive species and prioritise species for control	MAAF	USP, NGO, PRV	BLI, USP	2006	Eradicating rats, invasive alien species (IAS) on Vatuira Island & Viwa Island; invasive fire ant awareness
80	Make contingency plans for the containment and eradication of invasive species not yet present in Fiji but which pose a significant threat	MAAF	DoE	nil	nil	nil
81	Study the possibilities for the utilisation of invasive species	MAAF	USP, PRV	nil	nil	nil
82	Identify and develop acceptable means for the control for short, medium and long-term, in particular biological control	MAAF	DoE	BLI, USP, NT	2003-06	Eradicating rats, invasive alien species (IAS) on Vatuira Island & Viwa Island; weed control report for Yaduataba & weed eradication program
83	Ensure, through legislation, that biodiversity values and considerations are strongly integrated into current biological control decision making and practices	MAAF	AGO, USP, NGO, DoE	nil	nil	nil
	Objective 5.3					
	<i>Develop inter-island quarantine awareness and enforcement for important biodiversity</i>					

84	Review inter-island distributional differences in invasive species of concern and prioritise species for management	MAAF	USP, DoE, PRV, NT	nil	nil	nil
85	Establish administrative responsibilities and strengthen capacity	MAAF	DoE, PRV, NT, MSP	nil	nil	nil
86	Evaluate island eradication possibilities for the mongoose	MAAF	DoE, PRV	nil	nil	nil
87	Provide public, especially community awareness, on the threats posed by inter-island traffic in the spread of invasive species, in particular the mongoose, giving priority to the islands of Taveuni, Ovalau, Gau, Koro and Kadavu	DoE	FAB, NGO, MAF, MSP, NT, PRV	nil	nil	nil
Objective 5.4						
<i>Ensure national and government awareness and participation in the current international Biosecurity protocol discussions and debate</i>						
88	Appoint a focal point to be responsible for coordinating advice to Government on Biosafety issues and ensuring Fiji's participation in the current debate	DoE	MAAF	DoE	2008	Establishing a biosafety committee and database information; awareness activities planned
APPENDIX SIX (f)						
Planned Actions & Implementation Framework from						

NBSAP 2007						
f) Focus 6: Capacity Building and Strengthening						
Action	grey = identified priority action	Nominated Lead Org'n	Nominated support org'n	Who	When	Activity
	Objective 6.1					
	Enact legislation to establish an institutional framework and administrative capacity for ecologically sustainable development and protected areas and biodiversity management					
89	Adopt legislation to provide protected status for ALL native terrestrial bird, reptiles and amphibians with nominated exceptions (see footnote p 38 of NBSAP)	DoE	MAAF, FAB, AGO	DoE	?	Endangered & Protected Species Act (part covers this action)
90	Enact biodiversity conservation legislation based on the Sustainable Development Bill (1997-Part XVII)	DoE	MAAF, NGO, AGO	DoE	2005-07	Environment Management Act 2005 and Regulations 2008
91	Develop legislation for the preservation and maintenance of traditional knowledge, innovation and practices	FAB	NGO, AGO	nil	nil	nil

92	Advocate that traditional knowledge be internationally recognised as a 'Sui Generis' system for intellectual property rights	DoE	USP, NLTB, FAB, AGO	nil	nil	nil
93	Enact the sustainable resource management legislation of SDB (specifically part II-12), sustainable development policy formulation, and advocate for legislation based on SDB97 - Parts XII, XIII, XIV, XV, XVI in future revisions	DoE	MAAF, AGO	nil	nil	See: Action 90 - Sustainable Development Bill became the Environment Management Act 2005
94	Strengthen Fiji's capacity to implement CITES, the Convention on International Trade in Endangered Species	DoE	FAB, NGO, MAAF	DoE?, DFI?	2005-06?	any capacity strengthening mainly response to CITES ban on coral exports in 2007
Objective 6.2						
Enhance biodiversity management skills and capabilities						
95	Undertake a national needs assessment for biodiversity and bioresource management in conjunction with a review of courses at tertiary institutions and implement the findings	DoE	FAB, MAAF, NGO, MoE, USP, PRV	nil	nil	nil
96	Integrate appropriate traditional knowledge and skills into training courses	MoE	FAB, MAAF, NGO, USP	nil	nil	nil
97	Ensure tertiary scholarships are awarded by Government and attachments and collaboration are encouraged, to develop national expertise in biodiversity and bioresource research and management	DoE	Biodiversity Steering Committee	nil	nil	nil

	Objective 6.3					
	Develop communities' capabilities to manage and utilise forest and marine resources in a sustainable manner					
98	Review and implement appropriate partnerships with communities to enable them to attain sustainable community level resource management	FAB	DoE, MAAF, NGO	WCS, LMMA, DFI	2000-06	marine protected areas; Kubulau marine reserve network
99	Establish a funding mechanism to enable wide adoption of successful community-based sustainable resource-management initiatives	DoE	Biodiversity Steering Committee	nil	nil	nil
100	Through appropriate training, enhance the resource management capacities of land-owning and TFRO communities	MAAF	DoE, USP, FAB, SPC, SPREP	WCS, LMMA, DFI	2000-06	marine protected areas; Kubulau marine reserve network
	Objective 6.4					
	Promote biodiversity and bioresource considerations into Government economic decision-making mechanisms					
101	Advocate the valuation and accounting of direct and indirect goods from biodiversity and bioresources	DoE	Biodiversity Steering Committee, USP, MAAF, MoF	nil	nil	nil
	Objective 6.5					
	Promote and apply ecologically sustainable management practices in the 'natural resource' sectors - fisheries, forestry, agriculture, mining, and tourism					

102	Enact sustainable resource management legislation based on the Revised Sustainable Development Bill (Part II-12, Sustainable development policy formulation) and advocate for Sustainable Development Bill (1997 - Parts XII, XIII, XIV, XV, XVI) in future revisions.	DoE	AGO	DoE	2005-07	Environment Management Act 2005 and Regulations 2007
103	Collate, develop and promote information on the benefits of biodiversity conservation for the natural resource sectors	DoE	USP, MAAF, NGO, FAB	nil	nil	nil
104	Adopt internationally recognised Codes of Conduct, or Eco-labelling Schemes for natural resource exploitation	DoE	MAAF, DFO, DFI	DFO?	2007-08	steps being taken to certify export timber to international standards

APPENDIX SEVEN

Relevant Articles of the CBD and responses

Article 7. (i) Identify components of biological diversity important for their conservation and sustainable use

Fiji's terrestrial biodiversity resources of Fiji are of global importance⁷⁴. As is true of most isolated island groups, Fiji's terrestrial flora and fauna demonstrate a high degree of endemism (unique occurrence of species within a limited geographic area)—over half (56 percent) of Fiji's 1,594 known plant species are endemic, with some groups being completely or almost entirely endemic (e.g., 24 of 25 native species of palms in Fiji are endemic). More than 40 percent of the native forest cover of the islands is still intact, and some islands, like Taveuni, still have contiguous forest cover stretching from the mountain peaks to the coast. Forested areas provide habitat for a wide array of unique birds, mammals, reptiles and amphibians, insects and other invertebrates.

The WCS and the Biology Department, USP, carry out insect inventories with the Department of Forests.

FST/IAS at the USP performed a Pacific Asia Biodiversity Transect (PABITRA) across Viti Levu in the last few years. In addition, the institute has monitored Sovi Basin (with the Sovi Basin Working Group) and the Sovi Basin conservation initiative (with CI and NTF).

The FST at USP has studied the biology (breeding and reproductive endocrinology) of the Fijian ground frog (*Platymantis vitianus*).

WI-O has recorded that out of the 124 species found in Fiji, 11 are endemic of which four are newly identified species⁷⁵. The Lau area remains unstudied. The following are freshwater species that are under threat: * *Mesopristes kneri* need conservation because it is in a state to decline in Fiji (mainly from overfishing, river degradation and introduction of the exotic fish *Oreochromis* sp), and * *Redigobius* sp (Boseto) found in the upper Dreketi River (Vanua Levu). Threats to these species included industrial logging and communal waste dumped into waterways.

Several NGOs (Birdlife International, Wetlands International-Oceania, CI), the National Trust and the Department of Forestry, the USP's Department of Geography and the SPRH participated in the PABITRA (the Pacific-Asia Biodiversity Transect Network) project to obtain baseline terrestrial biodiversity data in the Sovi Basin and Wabu Forest Reserve on Viti Levu. The taxa involved include plants, birds, mammals, freshwater fish, frogs, reptiles, and insects. The project also involves the monitoring of invasive plant and animal species in these areas. The USP Department of Geography has performed various studies on coastal vegetation in Viti Levu.

Certain species of plants have rapidly disappeared from monitored areas.⁷⁶ Other areas of concern are freshwater ecology; destruction and fragmentation of tropical rain forest, dry forest, and cloud forest; and extirpation of some important endemic vertebrates, such as the red-

⁷⁴ From <http://www.naturefiji.org/>

⁷⁵ A. Jenkins, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

⁷⁶ Suliana Siwatibau, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

throated lorikeet (*Charmosyna amabilis*), pinked billed parrotfinch (*Erythrura kleinschmidti*), long-legged warbler (*Trichocichla rufa*), crested iguana, ground frog, and lizards like *Emoia nigra*.⁷⁷

The USP Biology Department and the IAS conduct surveys to prepare insect inventories for biodiversity assessment.

In 2004, Vodafone ATH Fiji Foundation provided funding to WWF (FCP) and its partners to undertake a survey of the Great Sea Reef (north coast of Vanua Levu), the third longest barrier reef system in the world. This survey is the first ever systematic effort to document the marine biodiversity of this reef known locally as Cakaulevu. Findings of the survey include the Great Sea Reef having 55% of the known coral reef fish in Fiji; 74% of the known coral species in Fiji; 40% of all known marine flora in Fiji and 44% of Fiji's endemic reef species. These and other remarkable findings have been documented.

Constraints

- There is no systematic approach to meeting the obligations under this Article – activities are piecemeal;
- studies are conducted on the basis of interest and not on the basis of need;
- the Department of Environment, as the CBD focal point, has not identified a strategy nor carried out monitoring.

Article 7. (ii) monitor the components of biological diversity so far identified.

The Department of Forestry⁷⁸ is mandated to ensure sustainability of forests through assessing imports and exports. Stocktaking of forest reserves takes place every 10 years: forest cover mapping is done through aerial photos and satellite photos, an expensive exercise to which SOPAC had provided assistance. Stocktaking is done to balance economic development and sustainability of resources. There were 1008 plots in the plot distribution in 2006-07. It is important to identify indicator species during the second cycle of plotting. Mapping of areas is done in 20 layers to include bird areas, water catchments, and cultural sites. The Department of Forestry is developing environmental layers.

Regionally, the IUCN monitors biological diversity through its 'Red List', or 'Red List of Threatened Species', the world's most authoritative assessment of Earth's plants and animals. It is recognised that Fiji's fauna and flora are inadequately represented (reported) on the Red List, and attempts are being made to address that problem.

Locally, the NGO NatureFiji-MereqetiViti has an active monitoring programme and Birdlife International monitors important bird areas. The WCS and the USP have active programmes in terrestrial invertebrate studies.

The Fisheries Department has been carrying out biodiversity assessments of the 410 *qoliqoli* (customary owned coastal areas) in Fiji. The Department also (says that it) monitors landings and exports of fishes.

⁷⁷ Craig Morley, in Society for Conservation Biology Newsletter, 9 November 2004. From <http://www.conbio.org/Publications/Newsletter/Archives/2004-9-November/v11n4005.cfm> - accessed 12 June 08

⁷⁸ Samuela Lagataki, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

The FST at USP has carried out a survey of the biodiversity of the benthic marine soft coral genus *Sacrophyton*, a behavioural and phylogenetics study of the honeyeaters (birds) of Fiji, a study on the habitat, biology and behaviour of the butterfly, *Papilio schmeltzii*, and the taxonomy, phylogenetics and biogeography of the Fijian longhorn beetles (Coleoptera: Cerambycidae). A book on the butterflies of Fiji was published in 2007 (Biology Department, USP).

Fiji hosts 12 threatened species of bird⁷⁹. Birdlife International has completed identification of 14 important bird areas (IBAs) in Fiji (project supported by the Darwin Initiative), identification of sea bird colonies and 11 old growth forests.

Fiji is a signatory to CITES (Convention on International Trade in Endangered Species on Wild Fauna and Flora). Live corals and 'live rock', classified as 'Appendix II' under CITES are the basis of an export industry in Fiji⁸⁰. To export Appendix II species, the State management authority (the Fiji Islands CITES Management Authority, for which the Department of Environment is the secretariat) must issue an annual certificate guaranteeing that live rock and corals have a 'non-detriment finding' (i.e. that their harvest has no detriment to the environment). The Management Authority's decision is based on advice of Fiji's CITES Scientific Council, which also administers an arbitrary quota. All exported coral and live rock must be accounted for, exporting firms must apply to the Management Authority (and the Fiji Customs Authority) and submit a packing list before product may be exported. The Scientific Council and the Management Authority were set up under Fiji's Endangered and Protected Species Act 2002.

The Department of Environment was the main player in the preparation of passage of the supporting legislation for CITES (the Endangered and Protected Species Act) through Cabinet, and hosts the Management Authority and Scientific Council.

Constraints

- There is no systematic approach to meeting the obligations of this Article;
- after studies of biodiversity are concluded, little monitoring takes place (there are exceptions);
- the Department of Environment, as the CBD focal point, has not identified a strategy nor carried out monitoring;
- the Department of Environment works on categories and lists of coral species compiled ten years ago, ignoring recent taxonomic advice that has resulted in name changes of species in the list⁸¹. The problem also lies in that other countries and the CITES Secretariat are using the newer names;
- the non-detriment finding must be established each year, a step that has been difficult to meet administratively. The Department of Environment relies on the Department of Fisheries to do the assessments, but at time of writing (October) the assessments has only recently begun). Fiji already has suffered two CITES export bans in the last few years because of administrative delays; and

⁷⁹ Birdlife International, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

⁸⁰ Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival:

<http://www.cites.org/eng/disc/how.shtml>.

⁸¹ Pers comm Biological Consultants Fiji

- overlapping responsibilities between the Quarantine section of the Department of Agriculture and the Fiji Customs Authority (CITES inspections; power to seize) causes inefficiency and lack of effective policing.

Article 7. (iii) identify processes and categories of activities which have or are likely to have significant adverse effects on the conservation and sustainable use of biological diversity

According to Birdlife International, birds are the best known indicators of biodiversity; in Fiji they are being threatened by commercial logging and alien pests, especially rats and wild plants⁸². Meanwhile, forest clearing contributes to Fiji's diminishing range of biodiversity. Other causes of biodiversity loss include fire, logging, over-exploitation of land, soil erosion and changing forms of our river conditions⁸³.

Implicated and confirmed as activities that have significant adverse environmental effects in Fiji are logging and logging roads in forests, dry-land and sloping land agriculture, increased turbidity of waterways and coastal waters from erosion and gravel extraction, urban run-off into coastal waters, unsustainable fishing, destruction of mangroves for light industrial development and squatter housing, dominance of invasive species (e.g. African tulip tree, mongoose) and many more.

Writers in Morrison and Aalbersberg⁸⁴ identified the many adverse effects of urban development and industry on coastal biodiversity (including shore birds, mangroves, littoral vegetation and molluscs) in the Suva Lagoon region.

Subsets of this Article worthy of individual commentary are **forestry** and **mangroves**.

Constraints

- Whereas processes and activities frequently are identified, there is no follow-through on doing something to remove or obviate those deleterious activities. Frequently there is legislation to address them, but application of legislation is lacking, or the appropriate course of action (or officer) is not identified;
- where deleterious actions are caused by a 'development' activity (such as logging or fishing for export) the government may be reluctant to address the matter;
- if any negative effects are not systematically presented (e.g. for mangroves) there is little motivation for remedy; and
- Government's resources are insufficient to address areas of concern. The involvement of NGOs and donor agencies are appropriate if funding is secured.

⁸² Birdlife International, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

⁸³ S. Siwatibau, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

⁸⁴ Morrison, R.J. and Aalbersberg, B. (eds) 2006. *At the Crossroads – science and management of the Suva Lagoon. Proceedings of a symposium, University of the South Pacific, 30 March – 1 April 2005*. Institute of Applied Sciences, University of the South Pacific.

Forestry

The forestry situation in Fiji has worsened over the past decade.⁸⁵ It is conservatively estimated that 70,000 hectares of native forest in Fiji has been lost in the past 15 years and forest loss continues; clearing appears to be occurring at a rate of 0.5% to 0.8% per year⁸⁶. Forest degradation in Fiji is through agricultural clearance, plantation establishment and destructive and unsustainable logging in large areas of the remaining tropical rainforests of Fiji. Fiji's forestry situation is of concern for species and habitat conservation, causing ecosystem degradation, erosion, sedimentation and predator and weed invasion. On the one hand, the total remaining native forest area in Fiji is being diminished by forest conversion to agriculture and by land degradation from logging, but on the other the establishment of mahogany plantations has raised the forest-covered area of Fiji to 54%⁸⁷ of total land area.

A report on sustainable forest management in Fiji by International Tropical Organisation four years ago concluded that much of the damage was done by the timber harvesting in indigenous forests, the mahogany plantations and to a lesser degree in the pine plantations⁸⁸.

Although Fiji's forests are reduced by logging, it seems that many endemic (bird) species can tolerate loss of forest but they cannot tolerate the associated effects of logging – pioneer vegetation entry to forests via opened areas, logging tracks, removal of smaller trees, agriculture taking place in logged areas, establishment of invasive (weed) species, and increased forest fires.⁸⁹ 'Forest loss through logging and secondary effects leads [sic] to forest fragmentation. Forest fragments are more susceptible to various threats such as fire and invasive alien species and are likely to slowly lose their bird and biodiversity value unless they regenerate their connections with other fragments.'⁹⁰

The 1953 Forest Act was replaced in 1992 by the Forest Decree. Whereas emphasis in the old Act was on management for timber production, there now is increased emphasis on sustainable forest management and heightened aspirations of landowners. In 2003 a review of the national forest policy commenced, and a draft Forest Policy Statement was completed in August 2007. Cabinet endorsed the Forest Policy in November 2007; now the Forest Decree is being reviewed⁹¹. Its review includes consideration of the National Code of Logging Practice (developed in cooperation of the government, loggers, and resource owners) which up till now is a 'soft' law⁹² because it contains guidelines only.

The vision of the Forest Policy⁹³ is 'Sustainable well-being and prosperity from diversified forests', with a goal of 'Sustainable management of Fiji's forest to maintain their natural potential and to achieve greater social, economic and environmental benefits for current and future generations.' It identifies change from forest sector planning to integrated natural resource management, transition from timber exploitation to sustainable forest management, empowerment of

⁸⁵ The Austral Foundation. 2007. *Review and analysis of Fiji's conservation sector. Final report*. [Report authors Annette Lees and Suliana Siwatibau]

⁸⁶ Claasen, 1991, in Masibalavu, V.T. and Dutson, G. 2006. *Important bird areas in Fiji: conserving Fiji's natural heritage*. Birdlife International Pacific Partnership Secretariat, Suva.

⁸⁷ Pers. comm. S. Lagitaki, Department of Forestry

⁸⁸ 'Forest loss affects resource owners'. *Fiji Times*, 15 July 2008.

⁸⁹ Masibalavu, V.T. and Dutson, G. 2006. *Important bird areas in Fiji: conserving Fiji's natural heritage*. Birdlife International Pacific Partnership Secretariat, Suva.

⁹⁰ *Ibid.* p 5

⁹¹ 'New forest laws'. *Fiji Times*, 3 September 08

⁹² Pers comm. Deborah Sue, forestry consultant.

⁹³ *Fiji Forest Policy Statement*, and *Summary of the Fiji Forest Policy Statement*. Department of Forestry, Ministry of Fisheries and Forest, Government of the Republic of Fiji Islands. November 2007.

landowners, streamlining and upgrading of forest industries, and reform of the institutional framework.

Prior to 1970, forestry revolved around extraction from native forests but after then, 62 exotic species were trialed⁹⁴. These trials identified that pine (*Pinus caribea*) would grow well on degraded hills ('talasiga' land) and that process led to the establishment of the pine industry in Fiji. 'Forestry' took on a more commercial aspect, and mahogany was planted to 'replace' or 're-forest' logged native timber and halt erosion. The commercial viability of mahogany for export was realised in the 1980s and 1990s, resulting in mahogany plantations. Because mahogany (*Swietenia macrophylla*) is exotic to Fiji and is plantation-grown, it legally can be exported (native stands from the New World are listed in Appendix II of CITES); but the 'down' side is that the species has invasive qualities. Presently, mahogany plantations around the country cover an area of 58,680 hectares, comprising 105 leases, and involving 204 land-owning units⁹⁵. Meanwhile, concerning native hardwood forest, 80% of log volume comprises five species (*kauvula*, *kaudamu*, *dakua*, *damanu* and *yasi*)⁹⁶.

The replanting of trees for forestry is somewhat contentious: native hardwoods, even though producing more valuable timber, take '80-100 years' to mature, whereas mahogany takes just '15-20' years. Landowners, viewing 'conservation' as 'looking after something for later use', generally also are unprepared to wait 80-100 years for 'returns' from forestry. Even so, that attitude is gradually changing (promoted by the Department of Forestry) and landowners are being encouraged to interplant native trees and mahogany. Leasing of forest plots lies with the Native Lands Trust Board. Also, landowners are seeking more capacity-raising, desiring to manage forests themselves. At some sites in the west, 'yasi' (sandalwood, *Santalum yasi*) is being replanted but the commercial value of that tree is exceptionally high, and it can be utilised at a young age. Some *mataqali* (land-owning units) have portable sawmills that are used to selectively log and process timber for sale, but this activity was only promoted 4-5 years ago.

For logging to take place, the government must first secure permission from landowners. These landowners identify a preferred contractor whom they recommend to the NLTB. Logging contractors must be certified (training provided by the Department of Forestry). The commitment of resource owner (landowner) to their timber harvesting lies in several levels:⁹⁷

1. simply lease out the resource (through NLTB) and get royalties;
2. involved in logging up to cutting logs, loading and so on – receive royalties and wages;
3. own a sawmill, can cut the logs themselves and/or invite contractors (through NLTB) but they control the operations;
4. harvest logs and value-add, including making products.

A forest certification standard (Fiji Forest Certification Standard) – for both native and mahogany (exotic species) forest – is coming into the industry in Fiji: it is a quality assurance mechanism and targets all species. Uncertified timber can be stopped only if it is for export, however (i.e. can be sold domestically). Community-based forest management is being promoted (e.g. by the Viti Resource Owners' Association and some NGOs). Often communities hold resentment of the Native Lands Trust Board – for example, it gathers a fee for replanting (but only mahogany, even if native trees were extracted) but reportedly rarely does, and the lease money it pays to landowners is low.

Several sizeable areas of largely native forest have been identified. They include the Drawa Forest in Vanua Levu, the Nadrau Plateau in the west, and Sovi Basin. At Drawa there are guidelines for participatory landuse planning, quotas on tree species and restrictions on size. Sovi

⁹⁴ Information offered by Ratu Osea Gavidi, chair of the Viti Resource Owners' Association; July 2008.

⁹⁵ 'Cabinet approves survey of mahogany leases', *The Fiji Sun*, 24 September 2008.

⁹⁶ Pers comm. Samuela Lagataki, Deputy Conservator of Forests, July 2008

⁹⁷ Pers. comm. Christine Fung, June 2008

Basin has been reserved for conservation through collaboration of the National Trust, two NGOs and a private company (Fiji Water).

Even though NGOs and government are targeting native forests for biodiversity conservation in Fiji, the final point is that landowners can and will only conserve their forests if they are offered an alternative income source – and that is reasonable.

Fiji has 28 sawmills and they all process native timber; seven of them are portable⁹⁸. The static mills have the capacity to process more than 300,000 cubic metres of sawn logs per year (total). Ten mills are in Vanua Levu, the remainder in Viti Levu. Wood supply for the mills is dominated by concessions. Decision by the Department of Forestry and the Native Land Trust Board to reclassify native timbers to higher grades and thus increase the level of royalty to be paid to local land owners is contested by sawmillers.

Constraints include:

- Landowners and the NLTB are supposed to identify boundaries but some landowners (*mataqali*) do not know their own boundaries;⁹⁹
- size of areas to be logged and the actual boundaries of leased areas should be re-assessed;
- size of areas to be logged and the actual boundaries of leased areas should be re-assessed;
- in setting up forest management units instead of giving concessions, the challenge is to ‘talk to resource owners in a language they understand’¹⁰⁰;
- the number of licences given, the length of leases, lease receipts should be re-assessed;
- construction of logging roads must, under the Environment Management Act 2005 and the National Code of Logging Practice, be subject to EIAs but the implementation of this law is a challenge. Erosion from logging roads and timber felling has catchment-wide negative implications;
- purchase of timber (from portable sawmillers) is a concern for communities;
- adequate training (capacity building) of machine operators and forestry officers;
- general lack of support from government: training forestry officers is a government obligation but there remain huge problems in data collection, monitoring, training. material resources. There is insufficient field staff to manage huge areas, and insufficient equipment;
- status of forest reserves requires clarification;
- operational logging plans are sometimes not produced, or sometimes incomplete;

⁹⁸ ‘New royalty fees to benefit landowners’, *The Fiji Sun*, 26 October 2008; and ‘Call for timber price review’, *The Fiji Times*, 26 October 2008.

⁹⁹ According to a recent newspaper report (‘Cabinet approves survey of mahogany leases’, *The Fiji Sun*, 24 September 2008) the total boundary perimeter of mahogany plantations in various locations in Fiji next year will be surveyed by the Department of Lands and Survey, the whole process (105 leases) expected to be carried out over ten years.

¹⁰⁰ Conservation International, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum ‘Partnership in Biodiversity’* 06 September 2007, Holiday Inn, Suva.

- awareness-raising in communities and in logging company staff insufficient. The Department of Forestry does have an ongoing awareness programme, but officers are ‘too thin on the ground’ such that the awareness effort is proving ineffective;
- enhanced consultation between government departments;
- level of legislated fines not big enough;
- implementation of relevant legislation – i.e. there are provisions in the Acts but they are rarely enforced.

Mangroves

The situation of mangroves in Fiji is unusual. Following British Colonial law, the Fiji Government recognised the Mean High Water Mark (MHW) as the legal boundary between land and foreshore. All land above this level belongs to either the Crown, native landowners, or private owners (Freehold Land) while all land below MHW belongs to the Crown; the right to fishing belongs to Customary Fishing Rights Owners. In 1933 all mangroves were constituted forest reserve and were managed by the Forestry Department but in 1974 a Cabinet Decision put all mangroves under the jurisdiction of the Lands and Surveys Department. A broad zonation philosophy for mangroves was established, and in July 1986 the Fiji Cabinet endorsed the National Policy Plan for Fijian Mangroves. The Plan stated that mangroves are an important national asset; they are primarily a resource base for capture fisheries; and they are a renewable source of products which contribute significantly to the quality of life of associated coastal communities.

Fijian fishing rights and the ‘ownership’ of mangroves are inter-related and the issue has important bearings on mangrove management¹⁰¹. On reclamation of the foreshore, the land remains Crown property.

In Fiji mangrove areas are converted for agriculture land (e.g. sugar cane) and there is some conversion to aquaculture, and estuarine dredging for flood mitigation can cause death of mangrove forests through increased siltation and dredging spoil. Mangroves are also used for building poles. Mangroves are also used for building poles. However, the main environmental issue now associated with mangrove forests is harvest for wood. Associated with this is the by far greatest threat to mangroves in Fiji – the rapid increase of peri-urban squatter settlements (squatter houses are often sited in mangrove areas) accompanied by the increasing cost of petroleum-based fuel. Whereas previously the cutting of mangroves was for cremation, its wood now is used largely for cooking: it is a great source of heat and takes longer to burn; also its charcoal gives out good heat. Mangrove wood is readily available at local service stations.

There is legal and illegal harvesting of mangrove wood. By a legal quirk, legitimate cutters are licensed by the Department of Forestry after first gaining permission from the Lands Department. There is also reclamation of mangrove areas in peri-urban areas for ‘development’. Statements by mangrove wood harvesters that the trees grow back quickly and match the harvest rate are not substantiated. In 1999 the estimated area of mangroves in Fiji was 42,565 hectares¹⁰² but this is widely at odds with the estimate by Watling (1984)³⁹.

¹⁰¹ Watling, D. 1984. *A mangrove management plan for Fiji. I. Zonation requirements and a plan for the mangroves of the Ba, Labasa and Rewa deltas*. Report prepared for the Mangrove Management Committee. A joint project of the Fiji Government & the South Pacific Commission.

¹⁰² ‘Cutting mangroves for fuel’ *Fiji Sun Weekender*, 19 July 2008.

The issues are the disbursement of mangrove management between those two Acts (Lands and Forestry) as well as legislation governing activities of the Department of Environment's and Department of Town and Country Planning (regarding environmental effects of development). Another problem is the reported notion by Forestry Department officers that mangroves grow rapidly and cutting is sustainable, but monitoring is not carried out. When applying for their free licence, harvesters have to agree that their harvest is sustainable (but what is 'sustainable'?). There also is a lack of enforcement of regulations prohibiting unlicensed mangrove felling.

The status of the National Policy Plan for Fijian Mangroves appears to be static. Some mangrove areas are of national conservation importance and any dredging in mangrove areas should be subject to environmental impact assessments¹⁰³.

The Department of Forestry stated that mangroves have always been an issue for discussion within the department and that perhaps there should be a total ban on harvesting. A Cabinet submission could be prepared on this matter¹⁰⁴.

Actions include:

- Ideally, active management and enforcement to prevent establishment of squatter settlements in mangrove areas. But in view of the poverty situation in Fiji, this policy cannot really be implemented;
- issuance of no, or few, licences with limits on harvesting to be strictly enforced;
- fees applied to mangrove cutting should ensure a high end-cost for mangrove wood;
- the legislation covering mangroves should be clarified and reviewed: it is untenable that two departments have legislative power over mangrove resource management;
- studies should be conducted on the growth, distribution and recovery of mangroves in Fiji. The results of the studies should set a platform for harvesting (if any);
- awareness programmes on the utility of mangroves as a living resource should be carried out;
- the National Policy Plan for Fijian Mangroves should be formulated and implemented. It should identify vulnerable areas, reclamation guidelines, and zoning maps (at least); and
- better communication between government departments: departments of Environment, Town and Country Planning, Lands, and Forestry.

Article 7. (iv) maintain and organise data derived from identification and monitoring activities

The Department of Fisheries maintains a database of fish exports; and the Department of Forestry has a database of log exports.

¹⁰³ Watling, D. 1987. *A mangrove management plan for Fiji Phase II. A plan for the mangroves of the Nadi Bay and Suva-Navua locales*. Report prepared for the Mangrove Management Committee. Joint Project of the Fiji Government and the South Pacific Commission.

¹⁰⁴ Pers. comm. Samuela Lagataki, deputy conservator, Department of Forestry

The SPRH, IAS and Biology Department at USP also have databases compiled from surveys and collections. Probably all NGOs have organised their data.

The Department of Environment does not have a database, even though it is recommended in the NBSAP¹⁰⁵.

Constraint

- No coordinated and 'public' set of information available.

Article 8. (i) Establish a system of protected areas to conserve biological diversity, and develop guidelines for the selection, establishment and management of protected areas.

Unfortunately, Fiji's Protected Areas System remains poorly developed both in terms of ecosystem representation and availability for visitor access and appreciation.

Largely through the industry of FLMMA, more than 200 MPAs or *tabu* sites have been established or identified along Fiji's coasts. The legislation to support them exists, but often it is not implemented by the Government. Appendix Eight, dated nearly four years ago, provides an insight to the Government's enthusiasm for these marine MPAs.

An outline of the protected areas programme is given in the NBSAP (p 30) and Appendix D of The Austral Foundation report¹⁰⁶ provides an excellent summary of conservation ('reserve status') in Fiji up to 2007: it is an ad-hoc and rudimentary system; other priority sites now selected on basis of biodiversity value; need for a representative system; there is a long-developed and well-used 'Sites of National Significance' register (spanning terrestrial, freshwater, coastal, marine). At the time the NBSAP was finalised the register comprised 13 sites in Central Division, 36 in Northern Division, 30 in Eastern Division, and 49 in Western Division; but a list recently supplied by the Department of Culture and Heritage records 23 Central sites, 29 Northern sites, 38 Eastern sites and 48 Western sites. In the recent PoWPA report¹⁰⁷ a total of 132 sites of national significance are identified.

Clarke and Gillespie¹⁰⁸ state that 'In recent decades, numerous protected areas have been proposed for Fiji. In 1980, the National Trust of Fiji – in collaboration with IUCN – produced a report that proposed a system of 88 national parks and reserves, set out guidelines for establishment and management of these sites, and included draft national parks legislation. The 1992 *National Environment Strategy* identified 140 sites of national significance, and recommended a formal legislative process to enhance protection of these sites. In recent years, a number of proposals for protected areas have also been made by non-government organisations ...'. There have been four national policy statements on protected area establishment since 1993. The latest is the Forest

¹⁰⁵ See also page 12 (Section 2.6):

From <http://www.adb.org/Documents/CAPs/FIJ/0103.asp>: 'In 1992, the Government prepared a report on the National State of the Environment and in 1993, a National Environment Strategy. The ADB TA supported the Government's effort to establish a database for natural resources, improve environmental awareness, and prepare more comprehensive legislation (TA for legislation and the database approved in October 1994)'. I have no knowledge of the database.

¹⁰⁶ The Austral Foundation. 2007. *Review and analysis of Fiji's conservation sector. Final report*. [Report authors Annette Lees and Suliana Siwatibau]

¹⁰⁷ Draft Initial PoWPA [Programme of Works for Protected Areas] Report, Suva, Fiji. August 2008.

¹⁰⁸ Clarke, P. and Gillespie, C.T. (no date) *Legal mechanisms for the establishment and management of terrestrial protected areas in Fiji*. Report prepared by IUCN Regional Office for Oceania for Birdlife International

Policy of 2007 that envisages 'a sufficient area [of forest] must be determined as Permanent Forest Estate' (p 4), 'Creation of a protected area system for the conservation of representative sites of Fiji's indigenous forest types with their typical flora and fauna' and 'Protection and conservation of biological diversity (including gene conservation areas), ecological and environmental forest values for the benefit of present and future generations' (p 5)¹⁰⁹. In June 2008 a coordinating team (called the national Protected Areas Committee) of representatives from the National Trust, Department of Environment, the USP and two NGOs (BI and IUCN) was established upon approval of the Fiji Cabinet. Its preliminary aims were to prepare an initial report by leading biodiversity/protected area specialists and government, conduct a workshop to determine next actions, and prepare the final version of the PoWPA analysis. In July 2008 the committee submitted a request to the UNDP-GEF for financial assistance for initial PoWPA analysis and priority setting, based on the actions identified in the NBSAP. Funding for a National Protected Areas Committee is also secured from the Global Conservation Fund and SPREP and support for the committee is requested from the NEC. The Committee conducted another meeting in mid-October 2008.

Fiji does not currently have any dedicated protected areas legislation. Nonetheless, there are a variety of existing statutory mechanisms with the potential to deliver site-based conservation benefits¹¹⁰. Several pieces of legislation (such as the Native Land Trust Act, Forest Decree, Water Supply Act, National Trust of Fiji Act) provide for reserve, conservation, heritage, or protected site status to varying degrees.

Kitione Vuataki (2007)'s¹¹¹ observations on this matter are of interest. He stated that in conservation law, whether a restriction on land development constitutes a 'taking' of land by government, or whether private landowners should be compensated for the loss of use of their land if their land is found to contain an endangered species or habitat of an endangered species, are 'simple as they are answered by Section 40 of the 1997 Constitution. Loss of property right for public interest has to be compensated, and 'property' includes an interest in the property.

The Department of Forestry, National Trust, NLTB, FAB, the Department of Environment and some NGOs have established a conservation area in the Sovi Basin (Fiji's largest and most diverse forest area), in collaboration with a private company, Fiji Water. Some of these stakeholders have also assisted landowners in setting up several protected areas such as the Bouma National Heritage Par, Waisali Rainforest Reserve and the Koroyanitu National heritage Park.

Several NGOs, as well as the FLMMA network, support marine protected areas (MPAs). WWF has supported a (mangrove) MPA in western Viti Levu and others at Ono in Kadavu and Sawaieke in Gau Island.

USP (Faculty of Science and Technology) /FLMMA carries out appraisals of the economic effects of Marine Protected Areas at all of its sites.

BI has an interim commitment to protect 3000 hectare on the Natewa Peninsula (Vanua Levu) for protecting critically endangered species which will be followed by species recovery process¹¹².

¹⁰⁹ *Summary of the Fiji Forest Policy Statement*. Government of the Republic of Fiji Islands. November 2007.

¹¹⁰ Clarke, P. and Gillespie, C.T. (no date) *Legal mechanisms for the establishment and management of terrestrial protected areas in Fiji*. Report prepared by IUCN Regional Office for Oceania for Birdlife International

¹¹¹ Kitone Vuataki. 2007. *Wildlife Conservation and the Law*. Address given at the 9th Attorney-General's Conference 2007, Shangri-La's Fijian Resort, 30th November – 2nd December 2007.

¹¹² Birdlife International, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

Clarke and Gillespie¹¹³ reviewed the various pieces of legislation offering scope for legal establishment of protected areas in Fiji. Their conclusions are:

'1. Concerted action by conservation organisations, government agencies and local communities is required if Fiji is to achieve the protected area objectives set out in its *National Biodiversity Strategy and Action Plan*.

2. The existing legal framework in Fiji offers a range of mechanisms with the potential to support the establishment and management of terrestrial protected areas. The conservation potential of these legal mechanisms is currently underutilised.

3. The absence of a coherent legal framework for protected areas presents challenges for the current generation of proposed protected areas. In particular, the existing legal mechanisms are not well-suited to the establishment and long-term management of large, co-managed conservation areas.

4. The Department of Environment has recognised this, and has invited the National Trust of Fiji and Conservation International to lead a consultative process for the development of national protected areas legislation for Fiji.'

Additional constraints

- Most priority sites have been selected for a long time but progress in proposal development is very slow;
- agreement is required on the actual number of National Sites of Significance (lists differ);
- agreement should be reached on the criteria for selecting sites – for example, should cultural sites and sites of biodiversity significance be treated similarly?;
- finance / compensation schemes – for example, despite the commitment made (Appendix Seven) pertaining to funding the establishment of MPAs, no funds so far have materialised¹¹⁴.

Article 8. (ii) regulate or manage biological resources important for the conservation of biological diversity.

The departments of Forestry and Fisheries are legislated to manage biological resources, and legislation is in place. In both areas however, the legislation is being revised considerably (yet to commence for Fisheries). Prior to recently, the emphasis on the management of fish and forest resources has been on development (harvesting); emphasis has changed now firmly to conservation as well as harvesting.

The challenge to managing mangroves and freshwater systems in Fiji is not addressed. With the former, the legislation needs review as management falls between two Acts (see Article 7(iii)); while freshwater resources are scarcely addressed (see: Irrigation Act, Drainage Act, Sewerage Act).

Many NGOs and the National Trust however, are committed to conserving biological resources (e.g. WCS and Greenforce at Kubulau, Frontier Fiji and USP on Gau Island; OISCA): the more

¹¹³ Clarke, P. and Gillespie, C.T. (no date) *Legal mechanisms for the establishment and management of terrestrial protected areas in Fiji*. Report prepared by IUCN Regional Office for Oceania for Birdlife International

¹¹⁴ Pers comm. J. Comley, IAS, September 2008

successful programmes centre on community empowerment and 'bottom-up' approaches, as identified by the FLMMA network.

Constraint

- In the absence of revised and modern legislation, regulating and managing biological resources depends on the goodwill of communities. That in turn depends on awareness raising and education.

Article 8 (iii) promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings

IAS in association with certain United States universities and the U.S. National Institute of Health are supporting the culture of artificial 'live rock' for the marine aquarium trade in five Viti Levu village communities. By growing live rock and exporting it instead of natural live rock, reefs are protected (and villagers' economic development is enhanced through returns from exports).

Promoting the protection of ecosystems is done in Fiji by many NGOs including WCS, Birdlife International, CI, WI-O, NatureFiji-MereqetiViti, WWF (FCP), as well as the National Trust; also FLMMA. Protection of habitat is cost effective as it protects many species by one activity.

WWF works with villages and *tikinas* in Kabara and Macuata. Besides working with communities and establishing MPAs they also work towards protecting species such as turtles, vesii, humphead wrasse, whales and parrot fish¹¹⁵.

The National Trust, Birdlife International and NatureFiji-MereqetiViti have been engaged in management of the Gau Petrel and its habitats.

The Department of Forestry encourages interplanting of native hardwoods with exotic timbers (e.g. mahogany). Since 2005 the Department has encouraged community-based forest management, especially with the use of portable sawmills – in Drawa, Nukuru and Lau. The Department of Forestry through its National Forest Policy (2007) encourages value-adding of timber products.

The Integrated Coastal Management programme of the IAS and partners works on the southern coast of Viti Levu. Here, where there are many tourist resorts, adjacent communities are being encouraged to manage their village environments in an environmentally sound fashion.

The Department of Fisheries, a partner of the FLMMA network, is active in promoting the sustainable management of (mainly coastal) fish stocks (see also FLMMA programme, Article 10).

WWF Fiji Country Programme initiated and led a survey of Fiji's Great Sea Reef (*Cakaulevu*) and associated coastal habitats in 2004¹¹⁶. Although it spanned only twelve days, it is heralded as the first ever systematic effort to document the marine biodiversity of the Great Sea Reef which lies to the north of Vanua Levu. Twenty-three sites were surveyed.

Constraints

¹¹⁵ Kesaia Tabunakawai, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

¹¹⁶ Jenkins, A., Sykes, H., Skelton, P., Fiu, M and Lovell, E. 2006. *Fiji's Great Sea Reef. The first marine biodiversity survey of Cakaulevu and associated coastal habitats, Vanua Levu, 5-16 December 2004*. WWF Fiji Country Programme, Suva.

- In the absence of revised and modern legislation, protecting ecosystems and populations of species depends largely on the goodwill of communities. That in turn depends on awareness raising and education;
- in the absence of a national strategy, conservation activities are piece-meal.

Article 8 (iv) promote environmentally sound and sustainable development in areas adjacent to protected areas

Eco-resorts adjacent to protected or reserved forest areas (e.g. at Bouma in Taveuni) are run on an 'environmentally-sound' basis but the decision to do so are individually made. The National Trust, with New Zealand Aid, has established community projects in Bouma National Park (Taveuni) and at Koroniyatu Forest Reserve in western Viti Levu (lodge, trekking). The IAS is also working with communities to establish eco-tourism on the southern coast of Viti Levu.

Article 8 (v) rehabilitate and restore degraded ecosystems and promote the recovery of threatened species

Re-establishment of mangroves is being undertaken in many coastal sites in the west and north of Fiji, mainly by the NGOs OISCA; some by PCDF. Other NGOs (e.g. Greenforce, Mamanuca Environment Society, WWF, WCS, WI-O) have engaged in similar coastal projects.

Coral restoration projects are also being undertaken by OISCA, PCDF and some regional NGOs (e.g. FSPI); OISCA also encourages the planting of indigenous fruit trees. Birdlife International has identified important bird areas; and NatureFiji-MereqetiViti is active in recovering sago palm stands in south-eastern Viti Levu as well as attempting to recover several endemic bird species.

The Department of Forestry does encourage planting of native forest tree species to some extent.

Studies conducted by the FST at USP include one on the spatial relationships between forest birds and habitats in degraded and non-degraded forest, and another comparative study of bird abundance and diversity in non-degraded and degraded mid-altitude rainforests of the Viti Levu southern highlands. There are also studies on endemic fauna (e.g ground frog; crested iguana).

The WCS is working on the Waimanu Watershed management area, Viti Levu, to establish conservation areas¹¹⁷. Other terrestrial projects include: (a) surveying crested iguana (*Brachylophus vitiensis*) habitat, especially on remote dry forest islands (Wildlife Conservation Society, University of the South Pacific, and the National Trust of Fiji); (b) field surveys of significant bird sites (Birdlife International); (c) the Pacific-Asia Biodiversity Transect Network (PABITRA), a programme for investigating Fiji's biodiversity (a joint project involving USP, the SPRH and most of the NGOs; and (d) field surveys of freshwater ecosystems in Fiji (WI-O and USP).

Constraints

- Rehabilitation of grasslands in western Viti Levu and on Vanua Levu is a great need;
- legislation to enforce appropriate buffer widths for riparian vegetation is spread between several Acts (and the proscribed widths are not uniform between Acts);

¹¹⁷ Thomas Tui, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

- attempts to restore ecosystems and recover threatened species are carried out in a piece-meal and independent manner: there is no system or strategy, or a ranking of priorities.

Article 8 (vi) establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental effects

There has been little activity here. Living modified organisms released include dairy cattle and meat sheep (that are relatively contained). Forty-nine new wheat varieties¹¹⁸ recently have been introduced, and 'Gift' tilapia (*Oreochromis* species) were introduced in the early 2000s for aquaculture.

Attempts to contain the tilapia were desultory and many fish escaped into natural waterways after heavy rain. I am informed¹¹⁹ that there are now no 'pure' stocks of 'Gift' tilapia in Fiji, all of them having interbred with the 'wild' ubiquitous exotic, *Oreochromis mossambica*, that already exists in many rivers on the main Fiji islands(it was purposefully introduced some years back by the Department of Fisheries) . It important to ensure that tilapia are not stocked in other islands (e.g. Taveuni) – but sadly in 2007 the Department of Fisheries released thousands of juveniles into the as-yet-unadulterated natural waterways of Kadavu in response to a political request.

Whereas the four taxa mentioned here are exotic to Fiji, risks are associated with them – especially with the tilapia: 'wild' tilapia have negatively affected populations of native aquatic fauna; now supported by genes from the 'Gift' tilapia (a larger and more robust variety) its effects will be even more deleterious (see below).

Constraint

- Perceived lack of interest by the Fiji Government in containing living modified organisms. However, Fiji having signed the Cartagena Protocol on Biosafety (Section 7) may lead to a willingness to address this Article.

Article 8 (vii) prevent the introduction of, control or eradicate alien species

The Fiji Government has a cavalier attitude to invasive alien species and is an active importer of exotic biota for agricultural, livestock, horticultural and aquacultural purposes – despite the apparent damage being inflicted by exotic species such as African tulip tree (*Spathodea campanulata*), mongoose (*Herpestes javanicus*), cane toads (*Bufo marinus*) and tilapia (*Oreochromis* spp). Even now it is introducing *Casuarina* trees from Australia, and teak trees (*Tectona* species)¹²⁰, and has recently introduced vetiver grass to assist in agricultural initiatives on sloping ground.

Studies conducted by the FST at the USP include a study of unicolonial aggression within and among local populations of the invasive ant, *Tapinoma melanocephalum* in Viti Levu, Fiji and the effects of invasive alien species on the distribution and abundance of skinks on Viwa Island, Fiji. The FST and Department of Biology (USP) have been engaged over several years in the eradication of rats, cats, dogs and cane toads from the endangered endemic Fijian ground frog refugia on Viwa Island, and Birdlife International conducted a similar eradication (to protect crested iguana) on the Ringgold Islands in 2008.

¹¹⁸ '49 new varieties of wheat introduced'. *The Fiji Times*, 20 September 2008

¹¹⁹ Pers comm. Suresh Chand, Department of Fisheries, August 2008

¹²⁰ 'Teak trees promise big'. *The Fiji Times*, 3 October 2008

The Department of Geography at USP is a leader in the study in Fiji of the effects of invasive plant species. Some of its projects are listed in the CBD Stocktake report and include the impact of invasive species on the flora of the Sigatoka Sand Dunes.

Jenkins¹²¹ has highlighted the connections between fish species and forest cover. Out of four surveys conducted it was found that about two-thirds of the sites (forested areas of Vanua Levu and Viti Levu) contained exotic fish species. He emphasised that ecosystem-based management is crucial and that watersheds or islands which contain endemic species should be prioritised for conservation.

WCS is working with the Department of Agriculture (Quarantine) to address quarantine issues relating to ants as part of an effort to address invasive species¹²².

The effect of introducing alien species can be particularly severe for endangered plants and animals. Currently, alien invasive species are the second greatest cause of biodiversity loss behind human population growth and its related activities¹²³. Invasive species pose an economic as well as an ecological threat and the economic implications of invasive species range from impacts on food species (plants and animals agriculture), to human health pathogens, changes in landscape, increased stress on endangered species, loss of biological diversity¹²⁴, and tourism. Invasive species are also a threat to sustainable development and any improvement in the situation will increase the chances of development being sustainable. The Roundtable for Nature Conservation¹²⁵ determined that activities should concentrate on controlling (if not eradicating) invasive species, and preventing the introduction of new ones.

Fiji has one of the highest rates of invasive species in the Pacific – because of a disorganised approach to addressing it; ‘disorganisation’ of Government departments, and accent on exotic pests and diseases that affect agriculture products¹²⁶. Those comments are supported by the Plant Quarantine Act that only applies to pests of plants, not plant pests – although subsidiary legislation (not sourced) relates to eradication of noxious weeds, quarantine areas, and prohibited weeds.

Leaving aside exotics that affect Fiji’s food security and its primary produce exports, Fiji’s environment is beset with a range of well-established exotic flora (from mahogany and African tulip trees to vines and creepers, even Vetiver grass) and fauna (e.g. Mynah birds, finches, mongoose, rats). Attempts at making dents in the established populations of those invasive biota have met with limited success (e.g. Birdlife International’s and USP’s rat eradication programmes on Vatu-i-Ra and the Ringgold Islands; USP’s cane toad eradications).

SPREP has taken on the regional role of raising awareness of invasive species and initiating programmes to combat them. Included in these is the Pacific Invasives Learning Network (PILN)

¹²¹ Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum ‘Partnership in Biodiversity’* 06 September 2007, Holiday Inn, Suva.

¹²² Thomas Tui, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum ‘Partnership in Biodiversity’* 06 September 2007, Holiday Inn, Suva

¹²³ Briony McPhee (2006). Alien flotillas: the expansion of invasive species through ship ballast water. http://earthtrends.wri.org/features/view_feature.php?fid=67&theme=7 – accessed September 2008

¹²⁴ For example, from organisms ‘hitch-hiking’ in ships’ ballast water: introduction of invasive species is one of the greatest threats to Earth’s oceans, alongside marine pollution, over-exploitation of marine resources and the physical alteration/destruction of marine habitats.

¹²⁵ Review of the Action Strategy for Nature Conservation in the Pacific Island Region 2003-2007. Reports of the Roundtable: Prepared for the 8th Regional Conference on Protected Areas and Nature Conservation. Report 2. Recommendations for strengthening the Action Strategy and enhancing its implementation. <http://www.sprep.org/roundtable/documents/FINAL%20REPORT%20STRENGTHENING%20AS.doc>

¹²⁶ Pers comm. Warea Orapa, SPC Plant Health, Nabua, Suva.

and the Pacific Invasives Initiative (PII) (see: CBD Stocktake Report). SPREP has encouraged the Fiji Department of Environment to be more active in its attention to the problem of invasive species (see, for example, Appendix Nine: status of NBSAP obligations on invasive species as at November 2007). In addition, SPREP has drafted a broad-based Regional Invasive Species Strategy (RISS) to be 'tied to the Action Strategy on Nature Conservation, 2008-2011'¹²⁷ (see Section 2.7).

Invasive plant (e.g. African tulip tree, nut grass, yellow primrose, Jerusalem thorn) and animal (e.g. Myna birds, rats) have a deleterious effect on agriculture. The SPC provides information on biosecurity and has assisted the drafting of biosecurity legislation; it also provides an identification service and is developing digital keys (PACINET).

One of SPREP's programmes is aimed at marine invasives. The issue of invasive marine species from shipping related vectors, in particular ballast water but also hull fouling, is one of four major threats to the world's oceans¹²⁸. The advent of bigger faster ships has increased the potential for the introduction of marine invasive species carried in ballast water. Well documented cases have caused major ecological upheavals and multi-million dollar economic costs. There is also the potential risk to human life, health and safety through the introductions of toxic dinoflagellates and infectious diseases. The Pacific Ocean Pollution Prevention Programme (PACPOL) has a regional strategy on 'Shipping Related Invasive Marine Pests in the Pacific (SRIMP-PAC)'.

Constraints

- The Government continues to import exotic organisms for aquaculture, agriculture and forestry without regard to the possible effects on the native environment. The Government generally, has an extremely off-hand approach to addressing the matter of invasive species (and indeed, except for pockets of concern raised in key departments) there is no evidence that it cares;
- any efforts in control of exotic/invasive species are largely uncoordinated and disorganised; departments do not 'talk' with each other; there is no lead agency;
- existing attempts at control of exotic species is performed by NGOs and academia, largely independent of each other and Government;
- the dated legislation (see 4.4) is very weak, narrow and old and largely supports 'national development';
- the large amount of international shipping traffic in Fiji waters poses a real risk to the establishment of deleterious populations of exotic organisms in Fiji's coastal waters.

Article 8 (viii) Respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application

Fiji's Department of Culture and Heritage is the implementing body for three statutory bodies, the Fiji Arts Council, Fiji Museum and National Trust, and administers an annual grant to them. Through the Department, the Institute of Fijian Language and Culture has completed its Fijian language dictionary. The Department also has embarked on a 'Living Human Treasures' initiative – recording oral history – and now has as its motto 'protection, promotion, preservation and

¹²⁷ 'Coordination of invasive species work in Fiji'. Minutes of SPREP-DoE meeting, 2 November 2007

¹²⁸ http://www.sprep.org/solid_waste/marine.htm

people', and is developing a holistic model of traditional/cultural inventory and research involving society and culture. The Department is also working with communities to identify aspects of culture.

The Department of Culture and Heritage operates under several cross-cutting Acts but does not have its own legislation. However, this matter is being addressed through preparation of over-arching legislation and placement of a national policy, to wit: Generic legislation for the protection of traditional knowledge and expression of culture has been developed in response to a request by the Council of Pacific Arts, the SPC in partnership with the Pacific Islands Forum Secretariat, and UNESCO. This Pacific Model Law is a framework for national legislation. The Department of Culture and Heritage is engaging in consultations over the draft 'Traditional Biological Knowledge, Innovations and Practices Act'.

The Fiji Museum has a research policy, but only for archaeological research. The Museum identifies sites and prepared a brief for Cabinet; sites can be gazetted and surveys conducted. Whereas the National Trust's portfolio has an emphasis on flora and fauna, the Museum's emphasis is on culture and archaeological sites.

Constraints

- In Fiji there is a gap in addressing cultural or archaeological sites – i.e. there is emphasis in addressing natural/environment sites but little emphasis in addressing cultural sites. This concern should be included when determining criteria for selecting Sites of National Significance (see: Article 8(i));
- training is needed – heritage and culture matters should be included in school curricula, and scholarships available for overseas study. The Museum especially suffers from lack of well-trained staff, often relying on the expertise of visiting fellows;
- The Department of Culture and Heritage recently was moved to the Ministry of Education, the third move in as many years. Such re-allocations are disruptive for staff and services;
- general lack of resource support for the Museum and the Department from the Government, even though the Department takes a proactive approach to seeking funds (e.g. from the Fiji Government, UNESCO, ILO, EU and the ACP);
- low salaries encourage trained staff to move to the Public Service from the Museum; and
- many valuable archaeological and cultural sites in Fiji are not managed because of lack of resources.

Article 8 (ix) develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations

There are 37 pieces of enacted legislation (another is still in draft) pertaining to the environment in Fiji (Appendix Eleven), but only five of them refer – often indirectly – to protection of threatened species and populations:

- Endangered and Protected Species Act 2002
- Environment Management Act 2005
- National Trust for Fiji Act 1970
- Fisheries Act 1942
- Forest Decree 1992

Constraints/actions

Kitione Vuataki 2007 (p 3)¹²⁹ writes of the Endangered and Protected Species Act 2002: 'Though according full implementation of its international convention, Fiji failed dismally in its local obligation to go further and protect our endemic species from other harmful acts not only to endangered endemic species but also to their habit. The Act, despite its wide ranging name, did not do justice to the threatened and near threatened endemic species of Fiji by only limiting itself to regulating trade in such species. It might as well have been called the Trade in Endangered and Protected Species Act'. There was, when drafting the Act, to incorporate measures to simply conserve native species but the opportunity was missed. As Evans¹³⁰ remarked, 'With passage of the Endangered and Protected Species Act (EPSA) the government's ability to conserve threatened species was materially enhanced. [Yet the main purpose of] the EPSA is to adopt in Fiji international controls under the Convention on International Trade in Endangered Species (CITES) ... [but] in addition, the legislation also controls the trade of some indigenous wildlife as a matter of national policy.... In both cases, the protection of wildlife exists only in a trade context, and the EPSA lacks relevance to species protection (whether endangered or otherwise) in a purely domestic setting, where the wildlife is threatened not by trade but from some other activities, such as habitat loss or bycatch.';

- the Environment Management Act 2005 does not deal directly with species and populations (only under environment impact assessment action);
- the National Trust for Fiji Act is intended to 'promote' the protection of animal and plant life but is silent on how the Trust is to fulfill this purpose;
- on the positive side, the Department of Fisheries has engaged the support of the Forum Fisheries Agency to review the dated Fisheries Act; the review is imminent; and
- the Department of Forestry is revising the Forest Decree in light of Cabinet's acceptance of the 2007 Forest Policy.

Article 9. (i) Adopt measures for the ex-situ conservation of components of biological diversity, preferably in the country of origin of such components

The Department of Agriculture at Koronivia, north-east of Suva, has a collection of insects (mainly agricultural pests) and a good collection of terrestrial insects is kept 'on loan' at the Bernice P Bishop Museum in Hawaii. Another small collection is maintained at the Biology Department of the USP, and yet a fourth collection at the Department of Forestry Entomology Section.

The SPRH has a regional collection of plant specimens, a large number of them from Fiji (gathered during numerous surveys – e.g. PABITRA; Sovi Basin). The School of Marine Studies at the USP has a wet collection of mainly marine fishes, also algae, corals and marine invertebrates. All of the specimens in these collections are dead.

The FST and Biology Department at the USP have established a captive breeding programme for, and management and aspects of reproductive physiology of, the endangered Fijian ground frog (*Platymantis vitianus*).

The Biology Department at the USP also hosted a study on the vegetative propagation of *Santalum* (sandalwood) and determination of *Santalum* hybrids.

¹²⁹ Kitione Vuataki. 2007. *Wildlife Conservation and the Law*. Address given at the 9th Attorney-General's Conference 2007, Shangri-La's Fijian Resort, 30th November – 2nd December 2007.

¹³⁰ Evans, N. 2006. *Natural resources and the environment in Fiji: A review of existing and proposed legislation*. IWP-Pacific Technical Report (International Waters Project) no. 21. SPREP, Samoa.

Constraints

- The cost of setting up and maintaining collections is high (I am told that the Koronivia collection is in a poor condition);
- only partly trained staff are available to manage the collections;
- many collections of Fiji biota are held offshore, mainly in European and American institutions;
- funding for ex-situ conservation (live breeding programmes, e.g.) needs to be continuous and may not be easy to secure;
- collections poorly maintained mean that information they contain is lost;
- overseas workers (in lieu of local taxonomists) find it difficult to secure permits to have preserved material sent to them on loan.

Article 9. (ii) establish and maintain facilities for ex-situ conservation of and research on flora and fauna

See Article 9 (i)

Article 9. (iii) adopt measures for the recovery and rehabilitation of threatened species

Birdlife International and NatureFiji-MereqetiViti promote protection of Fiji's 27 endemic bird species (through habitat rehabilitation); Crested Iguana recovery is also targeted by some NGOs and the USP Biology Department. Projects on sea turtles are managed by the USP and WWF, with interest from the Mamanuca Environment Society.

See also Article 9(i)

Article 9. (iv) regulate and manage collection of biological resources from natural habitats for ex-situ conservation purposes

The Biology Department and IAS of the USP have established a small national insect collection, based at USP.

See also Article 9(i)

Article 9. (v) cooperate in providing financial and other support for ex-situ conservation

No action on this Article(?)

Article 10. This article refers to the sustainable use of biological resources, protection and customary use of biological resources in sustainable use traditional practices, supporting local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced,

and encouraging cooperation between its governmental authorities and the private sector in developing methods for sustainable use of biological resources.

The FLMMA (that works collaboratively with the Department of Fisheries, other NGOs, churches and communities) programme attempts to address the common threats to marine fisheries that include overfishing, mangrove cutting, pollution and coral harvesting¹³¹. With communities as their main priority, FLMMA enters into a collaborative partnership with communities around Fiji, offering them support and providing awareness about their (coastal) environment. Communities are empowered to make decisions about their own environment and resources.

The key to FLMMA's success has been that they receive request from the communities to manage their *i-qoliqoli*. FLMMA is working in about 260 sites around Fiji, empowering local communities to manage their resources. FLMMA facilitates communities to develop monitoring activities and management plans, restrict access to *tabu* areas, carry out surveys of marine life, and adopt suitable approaches for awareness and monitoring programmes.

Constraints

- Successful MPA enforcement requires assistance and support from government and NGOs and funding for associated local economic projects;
- awareness raising and empowerment in local communities is needed;
- funding over a long time is needed (short-term funding does not support sustainable projects);
- evidence of little collaboration between government departments in sustaining biological resources.

Article 11. This article states that economically and socially sound measures should be developed as incentives for conservation and sustainable use of biological diversity.

Ecotourism is encouraged at some marine protected areas (e.g Kubulau) and forest reserve areas (e.g. Bouma on Taveuni).

Sovi Basin community protects its forest but gets money from a Trust Fund set up by a partnership involving the National Trust, Fiji Water (company) and CI. The focus of CI is on building and strengthening the capacity of the National Trust and government, landowners and other partners in the Sovi Basin conservation and management project. The lease expires in 2009; it is one of the key terrestrial conservation sites in Fiji.

The Drawa Forest community gets money from selected logging (see below, 4.3).

The IAS at USP works with the Ministry of Tourism and the Fijian Affairs Board in a coastal integrated management programme on the 'Coral Coast' on southern Viti Levu. The main objective of the programme is the establishment and implementation of an effective coordinated and systematic resource management mechanism to reduce existing and potential environment

¹³¹ Margaret Tabunakawai, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

and socio-economic problems arising from the various conservation and development initiatives in the areas.

Most established NGOs in Fiji engage with local communities in identifying incentives for conservation.

Article 12. (research and training). Programmes for scientific and technical education and training relative to identification, conservation and sustainable use of biological diversity and its components and promoting and encouraging relative research

The IAS, Biology and Geography departments at the USP engage in tertiary level capacity building in environmental studies and management. The USP Biology Department offers a post-graduate course in invasive species management, and elements of invasive species science are included in undergraduate courses.

PACINET, the Pacific loop of the Global Network for Taxonomy, BioNet, has operated from a base in Fiji to enhance Pacific Island taxonomic capacity building particularly in human resources, data access and production of modern technological tools to support decision making, apply taxonomic data to applied environmental problem solving and biodiversity management, and merge traditional indigenous knowledge into mainstream westernised science and natural resource management. While PACINET's emphasis is on training for Quarantine and Customs Authority personnel, it also carries out training workshops for local scientific staff in other institutions. PACINET is supported in the Pacific also by SPC and SPREP.

Significant capacity in insect taxonomy is being developed by the USP's Department of Biology and IAS. The programme continues to train an expert team of curators, technicians and parataxonomists in insect identification and collection management project.

The WCS and Bernice P. Bishop Museum in Hawaii have had for some time a taxonomic programme of Fiji terrestrial insects, and a guide to Fiji insects has been produced. I am uncertain whether the local component is merely a collecting vehicle for the Museum however.

Constraints

- Training in taxonomy and taxonomic assistance. Fiji's fauna is incompletely known – especially its invertebrates – and new species are 'coming to light' every so often. Unfortunately, many of the original animal collections from Fiji are held offshore in museums around the world, a situation that does not help researchers and training in Fiji;
- there is no opportunity in Fiji for tertiary level training in forestry and invasive (exotic) species; nor in curation of collections, archaeology, heritage and cultural matters. Individuals capable and interested in becoming professionals in those fields, and others, have to go overseas for training – and that incurs considerable cost, not least because they are unavailable in Fiji while they are training (and some may not return to Fiji).

Article 13. This article refers to public education and awareness raising: encouraging understanding of the importance of conservation of biological diversity through media and educational programmes; also cooperating with other States and international organisations in developing educational and public awareness programmes

Conservation/environment subjects are included in the school curriculum for classes 7-8 and forms 1 and 2. Extinct and endangered species (mainly in Fiji) are studied. Particularly in rural areas, children are aware of the environment (e.g. turtles, forests, birds).

Live and Learn (L&L) Environment Education (below) has been the primary NGO involved here, working in schools (with students and teachers) and communities throughout Fiji. The NGO provides training material and conducts teacher training workshops, and generally supports schools throughout the country. Australian Aid (AusAID), SOPAC, and IAS are among L&L's funding supporters. Programmes delivered by the Live and Learn Environment Education NGO in Fiji include: 'Coping with Water Scarcity' and 'Water for Life' (dealing with water concerns and developing responsible actions for the use and management of water resources), 'River Care' (teacher training and student leader training, training in water quality monitoring and beach monitoring ('Sandwatch')), raising awareness of the three endemic Fijian doves and the fruit dove (regional endemic), resource management, 'WET' (water education for teachers), and education for biodiversity conservation (activities based on defining and understanding biodiversity, protecting our heritage, investigating traditional practices and knowledge, and recognising and minimising threats to biodiversity).

Some other NGOs, particularly NatureFiji-MereqetiViti supply posters, small flip charts and CDs: these are appreciated by the teachers as they can see their Fiji species in colour (much better than the black and white drawings or even just text descriptions in dated books). The material is sent to schools around the country. WCS sometimes assists the schools. OISCA has a large programme with some schools on environment conservation (e.g. growing native fruit and timber trees; planting mangroves). The Department of Environment's education unit provides information, lately on waste management and the ozone project.

SeaWeb, a communications-based non-profit organisation is very active in Fiji in raising public awareness, particularly on marine conservation. Seaweb helps the media promote a healthy ocean, trains communities in media liaison, submits environment awareness articles to local newspapers for publication, helps reporters media write related stories, and puts media in contact with experts.

One local newspaper, *The Fiji Times*, also has been active in environmental awareness raising, recent feature articles being on mangroves, sandalwood, turtles and other marine biota.

Other local and regional NGOs (e.g. WWF, Birdlife International, SPREP, SPC, FSPI, FLMMA, National Trust) carry out awareness raising (packages of material) but their activities here are often piecemeal. Birdlife International is contributing to community capacity also by sponsoring two students at USP¹³².

The Department of Fisheries also engages with regional organisations in raising awareness (e.g. 'Year of the Turtle'; 'Year of the Coral Reef') and surveying (e.g. collaborating with the Society for the Conservation of Reef Fish Aggregations in conducting surveys and awareness raising in northern and eastern Fiji).

See also the FLMMA programme, Article 10.

The Biology Department, IAS and the WCS engage in a forest and environmental education programme with communities, and training in taxonomy of invertebrates (mainly insects). This includes disseminating the results of surveys in the form of databases, technical reports, web

¹³² Birdlife International, in Ministry of Tourism and Environment. (2007) *Report of the Fiji Stakeholders/NGOs Biodiversity Consultation Forum 'Partnership in Biodiversity'* 06 September 2007, Holiday Inn, Suva.

pages, identification guides (e.g. on Fiji butterflies), raising awareness of environmental and biodiversity issues by running workshops with local farmers, villagers and school children.

Several regional NGOs (especially including SPREP (with PILN), PII, SPC, FSPI and Greenpeace) have awareness programmes that are available in Fiji.

Constraints/actions

- Teachers in Fiji are given the choice to offer environment /conservation education to their students but in practice that choice depends on the granting of permission to do so by the school principals. Frequently, permission is not forthcoming (as it is determined by the interest/awareness of the principal);
- access to information remains a constraint (and see the NBSAP objective 2.3);
- the existing afternoon radio programmes, school broadcast unit and Fiji TV segments for children could be used, but funds and information (scripts) are required;
- awareness raising on some important conservation concerns (e.g. forests, invasive species) and the CBD is needed.

Article 14. (i) Introducing appropriate procedures requiring environmental impact assessment of proposed projects that are likely to have significant adverse effects on biological diversity

Fiji has done well in implementing Article 14 of the CBD by requiring EIAs on new developments (Environment Management Act 2005). However, as Vuataki (2007)¹³³ states, 'When it could have extended environmental audit to classification of endangered species, it only requires environmental audit in dollar terms by Section 22 of the Environment Management Act. Rather than extend EIA's to specifically cover existing projects rather than just proposed projects, EIA's are only required for proposed projects. Never mind the smell of Qawa River in Labasa' [Vanua Levu – sugar mill effluent] 'or the loss of mangroves in Suva or Nadi' [Viti Levu – from urban development and establishment of squatter settlements] '[and the] sea' [adjacent to coastal industrial areas] 'no longer safe for swimming according to WHO' [World Health Organisation] 'standards from the choliform count recently found in it. It may be that we strictly read international conventions and follow the letter rather than the spirit and intent.'

The Forest Policy (accepted by Cabinet in 2007) is strong on its vision of environmental assessment for logging operations.

Associated studies on the effect of development on the environment have been carried out by the FST at USP: (i) levels of persistent organic pollutants (POPs) and polybrominated biphenyl ether (PBDEs) in freshwater mussels (*Batissa violacea*) in Fiji rivers and seawater shellfish *Anadara antiquata* in Fiji coastal waters; (ii) an assessment of microbial contamination in fish available from roadside fish markets and fish shops in Suva; (iii) prevalence of pathogenic bacteria in shellfish and the effectiveness of closed water depuration system with biofilter on removal of these pathogenic bacteria; and (iv) pesticide residues in South Pacific foods.

Constraints

- Although the Environment Management Act (2005) legislates for EIAs to be carried out for many activities in the country, the EIA section within the Department of Environment

¹³³ Kitione Vuataki. 2007. *Wildlife Conservation and the Law*. Address given at the 9th Attorney-General's Conference 2007, Shangri-La's Fijian Resort, 30th November – 2nd December 2007

comprises two (soon to be increased to four) staff, having a low combined skill level. The ability of the Department to supervise and evaluate EIAs is therefore exceedingly limited;

- the Environment Management Act should be expanded to address already-established developments;
- the government has a low capacity to monitor proscribed environmental management plans for developments.

Article 14. (ii) notify other parties about potential adverse environmental effects

No action?

Article 14. (iii) promote national and international arrangements for emergency responses to activities or events which present a danger to biological diversity.

No action?

Articles 15, 16 & 19. These articles refer to access to genetic resources, governing legislation, transfer of technology surrounding their use, research and sharing of benefits.

The Australian Aid (AusAID)-funded South Pacific Regional Initiative on Forest Genetic Resources (SPRIG) project¹³⁴ commenced in December 1996, with a duration of three years; a second five-year Phase of SPRIG, SPRIG 2, commenced on 1 May 2001 and continued until 30 April 2006. Some of the activities under the project involved the collecting and field testing of tree species germplasm in the five participating SPRIG countries (including Fiji) and Australia. The Fiji Department of Forestry was a partner of SPRIG.

Collectors of germplasm follow the FAO (Food and Agriculture Organisation of the United Nations) Code of Conduct for tree germplasm collectors. Tree germplasm is defined as genetic materials such as seeds, pollen, vegetative cuttings, herbarium material and DNA. Germplasm from the following Fiji tree species were collected: *Agathis macrophylla*, *Barringtonia* spp., *Cordia subcordata*, *Dacrydium* spp., *Endospermum* spp., *Intsia bijuga*, *Pometia pinnata*, *Pterocarpus indicus*, *Santalum yasi*, *Swietenia macrophylla* and *Terminalia* spp.

No other action?

Constraint

- There is no legislation in Fiji to govern access to genetic resources.

Article 17 refers to the exchange of information relevant to the conservation and sustainable use of biological diversity, taking into account the special needs of developing countries.

Partners in projects do share information – e.g. the SPRIG project (Article 15), FLMMA partners, NGOs collaborating in particular projects (including the Kubulau project in Vanua Levu) and there is collaboration in developing terrestrial protected area sites and forest reserves, the RAMSAR

¹³⁴ <http://www.fao.org/forestry/16527/en/> - accessed June 2008

site on the Upper Navua River and the Sovi Basin reserve, both in Viti Levu. Generally however, information sharing is problematic in Fiji and it is an issue affecting all stakeholders – Government, local and regional NGOs, community-based organisations, statutory bodies, academic institutions and private organisations.

There are several reason for this (e.g. government incapacity, donor requirements, competition for funding) but it is worth noting some principles of the draft Action Strategy of the 2007 Roundtable¹³⁵ that include statements such as 'International partners will commit to ... aligning all conservation programmes with those of the national partners ...', and that they will 'work with each other to ensure collaboration analysis, strategies, agreed priorities and coordination of political engagements to avoid duplication .., and avoid programming that directly competes with national partners for projects and funding.'

Constraints

- Information gathered by NGOs often is not communicated to Government;
- information gathered by individual NGOs may be difficult to access because of delays in placing it on their website or collation;
- international NGOs are more obliged to providing feedback to parent organisations and donors than they are to the Fiji Government;
- the CBD focal point in Fiji (the Department of Environment) does not have an action plan for seeking information from other stakeholders: it plays a reactive role rather than a proactive role. This lack of a plan is also demonstrated by its not having current MOUs with most environment NGOs. Another small demonstration of this lack of plan is the Department's ignorance of the presence in Fiji of some – admittedly smaller - NGOs (some of which have been active here for several years);
- arbitrary establishment of MOUs between government and NGOs and other stakeholders and almost complete absence of following up any reporting requirements contained in the MOUs that do exist;
- the Department of Environment does not have a central information system (database) on which it can record conservation and biological diversity information. Its only knowledge on these depends on feedback from other stakeholders and in the absence of the Biodiversity Steering Committee and Scientific Advisory Committee that were supposed to have been set up under the NBSAP (Section 3.1) the department is relatively uninformed. Under these limitations is cannot fulfil the ideal role of coordinator of conservation activity in Fiji;
- absence of an over-arching conservation strategy in Fiji does not encourage information sharing.

Article 18. Cooperation on technical and scientific matters pertaining to conservation and sustainable use of biological diversity is encouraged through international and national institutions, policies, research programmes and joint ventures, in particular in developing countries and relevant to indigenous and traditional technologies. In promoting such cooperation, special attention should

¹³⁵ Roundtable for Nature Conservation. 2007. *Action strategy for nature conservation and protected areas in the Pacific Island region 2008-2012. Empowering local people, communities and Pacific institutions.* DRAFT.

be given to the development and strengthening of national capabilities, by means of human resources development and institution building

Some cooperation takes place between NGOs on particular projects (e.g. the Kubulau project in Vanua Levu), the National Trust, and the FLMMA network (see reports elsewhere).

In addition, representatives of NGOs and other stakeholders do gather at fora to present combined recommendations and opinions to the CBD focal point, the Department of Environment – for example, the Conservation Roundtable forum, the Protected Areas Working Group.

Regional NGOs (such as WWF Pacific Programme, SPREP, SPC, FSPI) encourage information sharing; they frequently initiate programmes that bring local stakeholders together. The Council of Pacific Arts encourages cooperation in its promotion of traditional knowledge and culture protection.

In other scenarios, cooperation and communication are lacking. This is illustrated by lack of reporting to the focal point (even as far as not formulating a MOU with it). Because some of the larger NGOs overlap in their missions, and programme areas, professional secrecy (relevant to donor funding) may come into play.

Constraints

- With some exceptions, lack of communication is evident among stakeholders – especially at government level;
- absence of MOUs between the Department of Environment (or any other Government Department!) and some NGOs.

Articles 20, 21. These articles refer to financial assistance. Parties should provide financial support and incentives in respect of those national activities which are intended to achieve the objectives of this Convention, in accordance with its national plans, priorities and programmes. Developed countries should provide additional or new costs and technology transfer to assist developing countries, taking into account the fact that economic and social development and eradication of poverty are the first and overriding priorities of the developing country Parties. The special conditions resulting from the dependence on, distribution and location of biological diversity within developing country Parties (in particular small island States) should also be considered. The Conference of the Parties should be involved in financial assistance support

No action here except for basic Government funding to support departments carry out their prescribed functions.

Article 22. The CBD provisions shall not affect the obligations and rights from any other existing international agreements except if they may cause damage or threat to biological diversity. The rights and obligations of the United Nations Convention on the Law of the Sea shall run parallel to the obligations of the CBD

No comment.

Article 26. Each Contracting Party shall, at intervals to be determined by the Conference of the Parties, present to the Conference of the Parties, reports on

measures which it has taken for the implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention

Constraint

- As identified earlier (Item 2), Fiji's reporting programme overall is haphazard.

Appendix Eight

Fiji commits a 30-percent Marine Protection system by 2020

PACNEWS (Pacific Islands News Association), 1 Edition, 17 January 2005

14 JANUARY 2005 – PORT LOUIS, MAURITIUS --- At least thirty percent of Fiji's oceans and coastal waters (*qoliqoli*) will become marine protected areas by 2020.

That's one of the many commitments made by Fiji at the International meeting of Small Island Developing States currently underway in the Indian Ocean island of Mauritius.

Foreign Affairs and External Trade Minister, Kaliopate Tavola, who is leading Fiji's delegation, said this new commitment would establish Fiji as a world leader in marine conservation.

"This commitment will enable Fiji to honour targets set at the World Summit on Sustainable Development under the Convention on Biological Diversity.

He also assured that under this 15-year marine conservation plan; government will provide alternative sources of livelihood for communities that will be affected by the conservation plan.

Worldwide Fund for Nature (WWF) Pacific has welcomed Fiji's initiative describing Minister Tavola's commitment as a 'landmark' decision. "Equally important is Fiji pledge to work in partnership with local communities, local and international organization on marine conservation," a WWF statement said.

A key and influential stakeholder is the Fiji Locally Managed Marine Area (FLMMA) network group comprising of 40 traditional fishing rights owning groups.

These include the University of the South Pacific, international conservation NGO's such as WWF, the World Conservation Society and Wetlands International, National Trust of Fiji, Mamanuca Environment Association, Resort Support, Peace Corp, Partners in Community Development Fiji and Coral Cay Conservation Society.

FLMMA develops community based management plans for fishing areas and provides the expertise to monitor the effectiveness of the conservation plan. It aims to empower communities to take ownership of the management of their marine resources.

Government, through the Ministry of Fisheries has committed to fund the project. To date, of the 410 units of traditional fishing areas, 29 coastal districts are in various stages of implementing the management of their marine protected areas (MPA).

Tui Macuata, Ratu Aisea Katonivere, who's also attending the SIDS meeting in Mauritius, said his province is working towards declaring its *qoliqoli* as marine protected areas. "It takes leadership to realize such a paradigm shift".

Appendix Nine Persons interviewed, UNCBD

(excluding workshop attendees)

1. Professor Bill Aalbersberg – Institute of Applied Sciences, USP 2. Katerina Atalifo – UNDP GEF Small Grants office, Suva 3. Iva Bakaniceva – Live & Learn Environment Education, Suva 4. Amena Banuve – Department of Agriculture (Research), Sigatoka 5. Rob Barrell – *Nai'a* Dive and Cruise operation 6. Ilaitia Boa – Principal Agriculture Officer, Quarantine & Inspection Division, Department of Agriculture, Suva 7. Sagali Buadromo – Director, the Fiji Museum 8. Atenisi Caginitoba – Wildlife Conservation Society, Suva 9. Joytika Chand – Tourism Officer, Department of Tourism, Suva 10. Salesh Chand – Sales manager, Pacific Green, Sigatoka 11. Suresh Chand – A/Director of Fisheries, Lami, Suva 12. Pip Cohen – Reefbase Pacific, World Fish Center, Institute of Marine Resources, USP 13. Pepe Clarke – International Union for the Conservation of Nature, Suva. 14. Tomasi Daunibuna – Department of Environment, Suva 15. Rajesh Dutt – Agricultural Technical Officer, Department of Agriculture, Nadi 16. Christine Fung – GTZ; Deputy Team Leader, participatory Landuse Planning & Moderation Specialist, SPC/GTZ Pacific-German Regional Forestry Preoject, Forum Secretariat Complex, Suva 17. Nilesh Goundar – Pacific Administration and Oceans Team Leader, Greenpeace Australia Pacific, Suva 18. Hugh Govan – Consultant, Fiji (formerly at FSPI). hgovan@gmail.com 19. Murray Isimeli – Political & Treaties Division, Department of Foreign Affairs, Suva 20. Melissa Jaques – policy officer, International Section, Australian Department of Environment and Water Resources, Canberra, Australia 21. Aaron Jenkins – Wetlands International – Oceania, Suva 22. Jone – Fiji Electricity Authority, Sigatoka 23. Juri – Organisation for Industrial, Spiritual and Cultural Advancement (OISCA), Sigatoka 24. Kate – SPREP, Samoa 25. Jill Key – Invasives Species Officer, SPREP, Samoa 26. Luke Koroisave – Office of National Planning, Suva 27. Viniana Kunabuli – Director, Curriculum Development Unit, Department of Education, Suva 28. Samuela Lagataki – Deputy Conservator of Forests, Department of Forestry, Suva. 29. Leone Limalevu – local consultant, UNCCD 30. Ed Lovell – Biological Consultants Ltd / School of Marine Studies, USP 31. Manoa Malani – Principal Tourism Officer, Department of Tourism, Suva 32. Sairusi Masi – Organisation for Industrial, Spiritual and Cultural Advancement (OISCA), Sigatoka 33. Arieta Matalomanu Moceica – Pacific Political Advisor, Greenpeace Australia Pacific, Suva 34. Samisoni Matasere – Native Lands Trust Board, Suva 35. Ashis Mohapatra – UNDP international consultant on capacity development 36. John Morezi – Live & Learn Environment Education, Suva 37. Alana Murphy – Greenforce, Vanua Levu 38. Seni Nabou – Pacific Political Advisor, Greenpeace Australia Pacific 39. Bill Nagle – Project Coordinator, Pacific Invasives Initiative, New Zealand 40. Alifereti Naikatini – SPRH, USP 41. Fulori Nainoca – Program Coordinator, Natural Resource Management Programme, Partners in Community Development Fiji, Suva 42. Warwick Nash, Director of the Pacific Regional Office, WorldFish Center Pacific Office, C/- The Secretariat of the Pacific Community, Noumea, New Caledonia 43. Ateca Nauvula – Department of Agriculture (Quarantine), Sigatoka 44. Sanivelati Navuku – World Wildlife Fund for Nature, Fiji Program 45. Sefanaia Nawadra – Fiji country program manager, Pacific Islands Program, Conservation International, Suva 46. Warea Orapa – Coordinator, Plant Health, Land Resources Division, SPC 47. Mausio Petero – Department of Agriculture (Extension), Sigatoka 48. Aporosa Rabo – Fisheries officer, Kadavu 49. Mere

Ratunabuabua – Department of Culture and Heritage, Suva 50. Jone Rausoi – Department of Forestry, Sigatoka 51. Arieta Ravuvu – Environment Unit; Team Leader, United Nations Development Programme, Suva 52. Navitalai Rokotuitai – Department of Agriculture (Livestock), Sigatoka 53. Mere Salusalu – Senior Quarantine Officer, Quarantine & Inspection Division, Ministry of Agriculture, Nadi Airport 54. Avisaki Ravuvu – National Trust of Fiji, Suva 55. William Saladrau – Department of Fisheries, Lami, Suva 56. Betani Salusalu – Mamanuca Environment Society, Lautoka 57. Sandeep Singh – Regional Environmental Specialist, American Embassy, Suva 58. Suliana Siwatibau – Suva 59. Milika Naqasima-Sobey – Department of Biology, USP 60. Don Stewart – Head of Pacific Division, Birdlife International Pacific Partnership Secretariat, Suva 61. Deborah Sue – Ridge to Reef Management, Suva (Forest Certification) 62. Helen Sykes – ‘Resort Support’, Lami, Suva 63. Kesaia Tabunakawai – World Wildlife Fund for Nature, Pacific Program 64. Jonetani Tagivetana – Tourism officer, Department of Tourism, Suva. 65. Ratu Viliame Tagivetava – Native Lands & Fish Commission, Suva 66. Eroni Talemaikanacea – Department of Fisheries, Lami, Suva 67. Kelera Taloga – Curriculum Development Unit, Department of Education, Suva 68. Paula Taukei – Deputy Secretary for Planning, Prime Minister’s Department, Suva 69. Alifereti Tawake – Fiji Locally Managed Marine Areas network, IAS, USP 70. Savu Tawake – Communications Officer, Ecumenical Centre for Research, Education and Advocacy (ECREA), Suva 71. Fe’iloakitau Kaho Tevi – General Secretary, Pacific Conference of Churches, Suva, Fiji Islands 72. Randy Thaman – Department of Geography, USP, Suva 73. Eleni Tokadua – Department of Environment, Suva 74. Tomasi Tui – Wildlife Conservation Society, Suva 75. Tevita Tuinalele – Tourism Officer, Department of Tourism, Suva 76. Marika Tuiwawa – SPRH, USP (contacted several times but no response) 77. Alan Tye – Invasive Species Officer, Secretariat of the Pacific Regional Environment Programme (SPREP), Apia, Samoa 78. Paulo Vanualailai – local consultant, UNFCCC 79. Ilikena Vaubula – Business Manager, Fiji Development Bank, Suva 80. Miliana Vukunisiga – Birdlife International, Suva 81. Masikerei Vunicagi – Live & Learn Environment Education, Suva 82. Inoke Wainiqolo – Deputy Conservator of Forests, Department of Forestry, Suva 83. Sunia Waqainabete – Principal Fisheries Officer, Department of Fisheries, Lami, Suva 84. Dick Watling – Director, Environmental Consultants Pty Ltd, Tamavua, Suva 85. Heidi Williams – Coral Reef Alliance, Suva 86. Jotame Yabakivitu – Native Lands & Fish Commission, Suva 87. Robin Yarrow – consultant, Suva 88. Tsutomu Yoshida – Resident representative and technical advisor Organisation for Industrial, Spiritual and Cultural Advancement (OISCA), Sigatoka