Government of Solomon Islands

Fourth National Report to the Convention on Biological Diversity

2011

Ministry of Environment, Climate Change, Disaster Management and Meteorology

Acronyms

AuSAID	Australian Aid for International Development
CI	Conservation International
CITES	Convention on International Trade on Endangered Species
COMSEC	Commonwealth Secretariat
CTI	Coral Triangle Initiative
EBA	Endemic Bird Area
ECE	Early Childhood Education
EIA	Environment Impact Assessment
EIS	Environment Impact Statement
EU	European Union
FAO	Food and Agriculture Organization
FFA	Forum Fisheries Agency
GEF-SGP	Global Environment Facility Small Grant Programme
GIS	Geographic Information System
IPGR	International Plant Genetic Resources
IUCN	International Union for the Conservation of Nature
KFPL	Kolombangara Forest Plantation Limited
KGA	Kastom Garden Association
km	kilometres
LDC	Least Developed Country
LMMA	Locally Managed Marine Areas
MCA	Marine Conservation Area
MEAs	Multilateral Environmental Agreements
MECDM	Ministry of Environment, Conservation, Disaster Management and Meteorology
MPA	Marine Protected Area
MTA	Materials Transfer Agreement
MTDS	Medium Term Development Strategy
NAPA	National Adaptation Programme of Action
NBSAP	National Biodiversity Strategy and Action Plan
NECDP	National Environmental Capacity Development Action Plan
NEMS	National Environment and Management Strategy
NGOs	Non Government Organizations
PA	Protected Areas
PER	Public Environment Report
SICHE	Solomon Islands College of Higher Education
SIEA	Solomon Islands Emergency Authority
SIWA	Solomon Islands Water Authority
SOE	State of Environment Report
SPC	Secretariat of the Pacific Community
SREP	Secretariat of the Regional Environment Programme
TNC	The Nature Conservancy
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification and Drought
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNFCC	United Nations Environment Programme
V/A	Vulnerability and Adaptation Assessment
WWF	World Wildlife Fund for Nature

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EXECUTIVE SUMMARY

PROCESS OF NATIONAL REPORT FORMULATION

The preparation of the Solomon Islands fourth national report to the CBD started very late due to the very late receipt of funds from the Implementing agency. The preparation and formulation of the report was carried out through a participatory process led by a Steering Committee coordinated by the government lead agency, the Ministry of Environment, Climate Change, Disaster Management and Meteorology. The Steering Committee involved relevant stakeholders from various government agencies, NGOs, private sectors, statutory bodies, UN agencies and academic institutions. A national consultant was engaged to collate information from the committee and various other groups and drafted the report for review and finalization by the committee.

OVERVIEW OF STATUS, TRENDS AND THREATS

The lack of data or information and the difficulties in even gathering what is currently known in biodiversity resources and all related subjects continues to be a major challenge for Solomon Islands. Such challenges and difficulties however have been inherent factors in least developed countries such as Solomon Islands and new efforts needs to be scaled up to rectify such situation as it continues to affect management decisions. The available information that has been collated for this report nevertheless has revealed some encouraging outcomes since the Solomon Islands last national report to the CBD.

Recent information collected and analyzed by various experts have shown that the Solomon Islands biodiversity is increasingly being recognized as forming part of the important global centers of biodiversity, the Western Pacific. Its terrestrial and marine resources and ecosystems have been recognized as of global significance. It is now recognized as part of the Coral Triangle which includes five other countries of the coral triangle region and is hence of international or global importance.

Solomon Islands has continued to pursue a number of efforts to address issues relating to the conservation and management of biodiversity with the support of national and international stakeholders and partners. These include national policies, strategies, and laws. Under the auspices of the Rio Conventions and other MEAs, Solomon Islands has signed on to most relevant global MEAs that address biodiversity issues. These include the Biodiversity Convention and its Biosafety protocol, UNCLOS, World Heritage Convention, CITES and regional and global programmes. *A* number of enabling activities have been implemented and have already been concluded. New programmes are also being implemented by national authorities, NGOs, bilateral partners and other stakeholders.

Forests/Terrestrial Ecosystems

The forests of Solomon Islands has been described and recognized as of global significance due to various facts which have come to light following recent analysis of current knowledge of the forest resources.

Solomon Islands has unique vegetation or forest types – These unique vegetation types include coastal strand vegetation, lowland rainforest, riverine forest, montane forests and grasslands. Further classification of these basic forest or vegetation types brings the sub types of the basic types to many more unique forest types recognized so far.

Solomon Islands is a Centre of Plant Diversity – Solomon Islands has an estimated 4,500 species of plants, and is thus recognized as a Centre of Plant Diversity. Further rigorous work could unveil new species as new and continuous work is still required. This is urgent in the case of Solomon Islands.

Solomon Islands is a Global Ecoregion – The Solomon Islands Rainforests has been recognized as one of 200 Global Ecoregions which have been analyzed as globally important by global experts.

Solomon Islands rainforest is Globally Outstanding - The Solomon Islands Rainforests Eco-region has been ranked in the highest category as 'Globally Outstanding' within the 200 global eco – regions. Its inclusion in the global 200 list puts the Solomon Islands rainforest as the most biologically valuable eco-regions. This is in recognition of the Solomon Islands as true oceanic islands with high vertebrate endemism, including single island endemism, restricted range mammals and an outstanding 69 bird species found nowhere else on planet earth.

The Solomon Islands rainforest is one of three Great Rainforests on the planet – The tropical rain forest of Solomon Islands and New Guinea make up a large tropical rain forest area that has now become one of the three great tropical rainforest regions of the world. The continents of South America and Africa each have one of the remaining two.

The Solomon Islands is part of the largest block of Tropical Rain Forest in the Asia Pacific region. The rain forests of Solomon Islands with New Guinea make up the largest block of tropical rain forest remaining in the Asia Pacific region. With the reduction of tropical rainforests in the Asian region through industrial logging, the rainforest of New Guinea and Solomon Islands now make up the largest block now remaining in the region.

- Of the total 4,500 species referred to above as occurring in the country, 3200 are known to be native or indigenous.
- The known plants are mostly made up of 2763 species of angiosperms (dicots and monocots), 22 species of gymnosperms and 367 species of pteridophytes (true ferns and fern allies).
- Even though plant diversity is high with endemism considered generally low, 57% of palms, 50% of orchids, and 75% of climbing Pandanus species are considered endemic.
- Sixteen (16) species have been listed under the IUCN Red Data list as threatened. Several other species continue to be threatened. These include ebony, rosewood, rattan and some palms.

- Terrestrial invasive species have not been well documented but a list produced by the Pacific Islands Ecosystem at Risk in Hawaii totaled 368 invasive and potential invasive species for Solomon Islands. These include alien and native invasive species.

Terrestrial fauna

- ***Birds*** - Solomon Islands currently known species of birds totaled 223 species, a staggering 82 percent of which are endemic and 2 extinct. Recent information has revealed however that 2 are critically endangered, 3 endangered, 14 vulnerable, 23 near threatened and 4 species of increasing concern recently.
- Bird life International categorized the Solomon Islands Endemic Bird Area (EBA) concept with the "***highest number of restricted range species in any Endemic Bird Areas"*** of the World.
- It has been observed that the evolutionary process of speciation and population variation had been so marked in the country's bird population that *"there is no other place in the world, not even the Galapagos Islands* (made famous by Charles Darwin using finches*) where speciation and population between islands is so marked as in the Solomon Islands".*
- **Mammals -** The total number of mammal species known is 53. With the exception of the larger island of New Guinea, this is higher than other countries of the Pacific islands region. About 36 percent (19 species) of the mammals are endemic. The mammals comprise 41 bats, 8 rats, and 4 opossums. Twenty species are threatened including three bats considered to be critically endangered.
- **Reptiles –** Reptiles are not well studied especially in high elevation of the montane forest and where more work needs to be done. Eighty species are currently known or identified which includes marine turtles. One third of the group is endemic whilst five are said to be threatened. The endemic species includes the world largest prehensile tailed skink (*Corucia zebrata*) and nine species of snakes.
- **Frogs** – Most frogs in Solomon Islands belong to the family *Ceratobatrachidae*. Two species belong to the family *Hylidae* and one each to *Ranidae* and *Bufonidae.* Two species are endemic (*Discodeles malukuna and Platymantis sp*). There are total of 21 species now identified.
- **Invertebrates –** As with many biodiversity groups, the invertebrates are not well studied as well and there are not much enough information on this important group. There are 130 species of butterflies known of which 35 are endemic. There are 25 endemic snails and 31 endemic species of cicadas. It has been estimated using Lepidopterian species numbers, that there are 14,511 described insect species and 46,015 total insect species.

Agricultural ecosystems

Even though Solomon Islands has a large area of land compared to other islands of the South Pacific, not much of the land is suitable for large scale agricultural development activities. Only about a fifth of the country is suitable to some form of large scale agricultural developments.

These are located in what has been referred to as Agricultural Opportunity Areas and are about 5450 km^2 in total. This figure equates to about 19 % of the total land area.

- The largest of an agricultural ecosystem in used in the country is the Guadalcanal plains which is also the most fertile of the land as it is basically an alluvial plain. Most of it is currently used for a monoculture oil palm plantation. There are also large cocoa and coconut plantations, small vegetable farms and subsistence farms.
- The few cash crops grown in Solomon Islands for large scale commercial production are coconut, cocoa and oil palm. Smaller amounts of products such as coffee, vanilla, and kava are also produced for commercial export.
- A record of edible plants in the country listed about 120 indigenous species that are found and harvested from the tropical rain forests. There is a general erosion of agricultural biodiversity as many crop varieties are introduced.
- In terms of livestock resources, there is a low population of cattle with a current figure of about 5000 from a high of about 20000.
- There are still pig varieties, but most of what is currently being farmed are new breeds. In terms of poultry, local chickens are still there but not much work has been carried out to document or conserve varieties of stock. Solomon Islands is now importing most of its meat products including beef, pork and chickens due to lack of consistent local supplies.

A number of positive initiatives through research work have been implemented in the past to conserve genetic stocks. Since the ethnic crisis however, most work have come to a standstill and need to be revitalized again.

Freshwater resources

Solomon Islands has abundant water resources in the forms of rivers, streams, lakes, swamps, wetlands and underground water. Apart from their natural functions in ecosystem services, the rivers and streams especially provide protein food sources, drinking water and other essential domestic uses for the people of Solomon Islands.

The biodiversity resources of freshwater systems in Solomon Islands are currently poorly known with freshwater plants having no records. In terms of the freshwater fauna however, there is high species richness and variable endemism within Solomon Islands and between and within Solomon Islands. The current general situation is as follows:

- A total of 43 fish species representing 26 genera and 14 families have been identified so far from 31 sites.
- There are 93 species of Heteroptera representing 28 genera and 12 families with 60% endemism at the species level.
- A total of 63 species of Odonata were also recorded which represent 37 genera and 12 families with 44% of the species endemic and 1 new to science.

- There were also 9 species of Gyrinidae representing two genera and 10 species of Simulidae representing two genera.
- Ninety percent of both groups were found to be endemic.
- There is a need to do more work in freshwater systems especially to assess the status of Molluscs, Crustaceans and Annelids.

Coastal and Marine biodiversity

As a coastal island state, Solomon Islands directly depend on the coastal and marine environment for a wide variety of uses including food, tourism and transport. The coastal marine environment of the Solomon Islands is increasingly being recognized as of global importance.

- *Bismarck Solomon Seas Ecoregion* – Due to the high diversity of saltwater fish and coral species found in the coastal and marine areas, Solomon Islands has been placed under a regional eco – region known as the Bismarck Solomon Seas Ecoregion which covers Northern New Guinea, PNG and Solomon Islands (up to Makira province).
- *Coral Triangle* – The above work and additional work have identified this region as part of a large eco-region now known as the Coral Triangle. The Coral triangle is now one of the most recently recognized marine eco-region of global importance due to the high species and ecosystem diversity observed within the region. The region covers the Philippines, Malaysia (Sabah), Indonesia, Timor Leste, Papua New Guinea and Solomon Islands.
- Even though there is high marine species diversity, Solomon Islands has low level of endemicity at the national or sub national level. In terms of the marine flora, Mangrove species in Solomon Islands identified so far totaled 38 representing 13 families and 15 genera with 43% endemic. Mangrove areas cover more than 60,000 hactares of coastal areas.
- Recent assessments recorded 10 species of sea grasses and 233 species of marine algae. These comprise 14 Cyanophyta, 121 Rhodophyta, 27 Phaeophyta and 71 Chlorophyta.
- In terms of marine fauna, Solomon Islands has high diversity. The recording of 485 coral species comprising 76 genera placed Solomon Islands in the Coral Triangle, which is recognized as global coral diversity hotspot and centre of coral endemicity.
- There are 19 species of sea cucumber (Holothuirods), 4 main species of crayfish, 6 giant clams, 3 species of pearl oyster, trochus and green snails.
- A total of 1019 coral reef species have been identified so far. Marine mammals include 9 species of dolphins, 8 species of whales and one dugong species.

Mountain Ecosystems

One of the main characteristics of Solomon Islands physiographic status as a volcanic island nation, are the rugged mountains, hills and ridges. The highest point in Solomon Islands is at Mt Popomanaseu at 2310m on the island of Guadalcanal. The island of Guadalcanal has many mountains that are more than 2000 metres above sea level and numerous mountains that are

more than 1000 metres. All other major islands also have mountains that are more than 1000 metres. There is an urgent need to increase work in the mountain ecosystems.

- The mountains are mostly characterized by sub-montane to montane forests. The sub-montane forests in the Solomon Islands appear at an elevation as low as 600 m due to altitudinal zonation being compressed in smaller islands.
- The vegetation in sub-montane to montane forests are characterized by moss covered and wet stunted trees. In the sub montane areas, the understory is usually characterized by covering of montane bamboo species, alpinia gingers, shrubs and creepers. Even though endemism is usually high in the montane areas, there is a reduction in the number of species of plants with increasing elevation.
- The dominant tree species in the montane areas are *Dacrydium* and *Eugenia.*
- In terms of the fauna, birds recorded from these mountains include the Solomon eagle *(Haliatus leucoglaster), s*teel blue flycatcher (*Myiagra ferrocynae)*, grey throated white eye (*Zosterops rendovae)*, the pygmy parrot (*Micropsitta fincshii),* and swiftlets.
- Bat species recorded from the mountain tops include the endangered *Pteralopex anceps.*
- Frogs include Solomon Islands largest tree frog, *Platymantis guppyi*, *P. solomonis*, *P.weberi*, *Bactrachylodes vertbralis*, *B. wolfii*, and *B.trossulus.*

Dry lands Ecosystems

There are no natural dry land ecosystems in Solomon Islands but there is a growing grassland that had developed from recent introductions of some invasive species especially that of the fire resistant kangaroo grass *Themeda australis*. What now appears and develops as grasslands in some parts of the country has been the result of human activities such as slash and burn and an annual fire burn that has not allowed re-growth to occur and has established itself as a significant system that is threatening natural forest ecosystems. The grasslands systems are found mostly in North Guadalcanal and the Florida Islands and to some varying degrees in some of the other islands.

These grasslands are dominated by *Themeda australis, Imperata cylindrica* and *Pennisetum polystachyon*. Herbs that occur in association with these species are *Emilia sonchifolia*, *Mimosa invisa, Polygala paniculata, Uraria lagopodioides* and small herbaceous climbers. Where there are poorly drained soils, *Cyperous spp, Phragmites karka* and *Saccharum spontaneum* are common. Pockets of woody plants such as Crotalaria also occur.

Ecosystem conservation and management

Efforts in the conservation and management of ecosystems continue to be the major conservation activities in the country. This has been especially been led by many NGOs, community organizations and other stakeholders such as donors. The efforts has seen a dramatic increase in the number of sites that have been fully secured for protection even

though many still have to await the finalization of the relevant legislation before they can be processed through the legal requirements to achieve legal status. To date there have been more than 100 sites of terrestrial and marine areas that are either under development or are already protected or are under some form of management. These areas have already increased the total areas of land that is under protection, management or is secured for protection in the country.

The development of protected or conservation areas is a major tool in the integration or mainstreaming of biodiversity. Even though Solomon Islands has not had many legally established protected or conservation areas, the amount of effort shown in recent years in this issue has been very reassuring. The effort has manifested itself in more than 100 known, managed or secured, protected or conservations areas. These comprise different types of terrestrial and marine ecosystems. Some of the large areas that make up this list already add up to more than 5 % of the total land area of Solomon Islands.

THREATS AND DRIVERS

The main threats that continue to endanger the biodiversity of Solomon Islands are logging, inappropriate land use practices, mining and prospecting, over-exploitation of natural resources, population growth, natural disasters, invasive species, pollution and climate change. In the terrestrial environment, industrial logging and development of large scale monocultural agricultural plantations of oil palm, coconut and cocoa, and the clearance of land for subsistence gardens are the major activities that are of direct threat to biodiversity. New threats such as climate change and invasive species are increasing in magnitude and are not so obvious to the general public. In the marine environment, the major treats are the over exploitation of marine resources, pollution from land based sources and climate change.

Threats such as high population growth which is directly related to the high demands and consumption on the biodiversity resources can also be regarded as a driver as well to the threats. External demand of biodiversity goods and products and changes in the peoples' lifestyles continues to be major drivers as well.

IMPLEMENTATION OF NBSAP

The Solomon Islands NBSAP which was produced and endorsed by the government in 2007..... prioritizes the following thematic areas: Mainstreaming of Biodiversity; Species Conservation, Protected Area System; Management of Invasive Species; Benefit Sharing & Access to Genetic Resources; Financial resources; Human Resources and Capacity Building; Research, Monitoring and Information Sharing; Agro biodiversity; Climate Change; Waste Management; and the Alternative Energy Use.

The NBSAP is guided by a vision, a mission statement and guiding principles. The national government, all provincial governments and NGOs have all made commitments to implement the action plan. The Solomon Islands NBSAP reflects the relevant CBD COP decisions, the 2010

Biodiversity targets and the Millennium Development Goals (MDG). The plan has incorporated relevant targets and is currently being implemented. The proliferation of protected areas development is partly the result of actions and priorities identified under the plan. The significant developments in institutional arrangements, capacity building and legislative developments are further examples of the efforts seen so far in the implementation. Otherwise it is early days and at present the implementation could be best described as varying.

MAINSTREAMING AND INTEGRATION

The need for mainstreaming and the integration of biodiversity considerations into all facets of decision making processes in the Solomon Islands continue to be major issues and their need has increased significantly. The most urgent need is to institute the most effective national mechanisms that will give result to plans. There is also an urgent for such mechanisms to give the required results where it is most needed. There are current plans, legislation, policies and actions taken at various levels that allows for mainstreaming to happen and actually requires it to happen but there has been no effective national mechanism to make it an effectively coordinated outcome of decision making at all levels.

There have been improvements though and this is seen in some of the most significant achievements in institutional building and legislative developments in the last few years. There are also existing mechanisms that are aimed at mainstreaming and integration of biodiversity considerations that enables and those that can effect mainstreaming and integration. These need to be used in the most effective manner to give real result to meaningful mainstreaming and integration. These existing mechanisms are: Legislation, Policies, Strategies and programmes, Budgetary processes/instruments, National Planning procedures, Environment Impact Assessment requirements and procedures, Monitoring and evaluation requirements, Development approvals, Project documentation, Direct project implementation, Guidelines for implementation, Education and awareness , Training in tertiary institutions with environment and biodiversity graduate qualifications , Partnerships with stakeholders, Establishment of PAs, Committees and Advisory bodies, GIS, and Land use plans.

PROGRESS TOWARDS THE 2010 TARGET AND IMPLEMENTATION OF THE STRATEGIC PLAN

Solomon Islands has made some progress in terms of some of the targets despite continuous challenges. One of the most significant progresses to date is the increase in the number of known protected and managed areas that now numbered about 113 sites of terrestrial and marine areas. Known protected or managed terrestrial areas already accounting for 1521.18 km^2 or about 5% of the country's total area. Many of the areas are yet to be legally established. One of the most significant achievements that will further assist in achieving the targets is the enactment of the Protected Areas Act 2010. The existing legislations such as the Fisheries Act, and the Forestry Resources and Timber Utilization Act, have already taken care of the protection of many species that are of concern. The enactment of the Wildlife Management and Protection Act and the country's accession to CITES has almost significantly reduced the

trade of wildlife species and products of concern. Efforts in the conservation of genetic resources and the equitable sharing of the benefits arising from their use have been very low and needs to be improved.

Ecosystem degradation however continues to be a concern in terrestrial areas due to industrial logging which is still continuing. The implementation of the Environment Act has played a part in controlling impacts of such development activities. The control of alien invasive species has been a problem due to lack of resources and human expertise. There has been lack of programs to address this issue even though specific project sites have their projects covered with control strategies. The recent appearance of the Giant African Snail has kick started some actions though.

The impacts of climate change on biodiversity are already believed to be considerable especially on coastal areas and lowland areas. The Solomon Islands has completed its NAPA and hopes that some of the key concerns will be addressed through its implementation. New programs such as the CTI initiative will add further impetus to national efforts on this issue. Opportunities for addressing the impacts of pollution on biodiversity exist through the EIA process under the Environment Act and other related statutory legislation such as the Mines and Minerals Act. Whilst the socio–cultural dimension of biodiversity in Solomon Islands is recognized as part and parcel of the people's survival and its continuous civilization, not much work has been done to document important aspects of these issues. An IPR bill has been drafted but has not been finalized. Institutions responsible for carrying out such tasks have lack the resources to do so.

In terms institutional strengthening, Solomon Islands has completed its national capacity action plan and is currently at the implementation stage. National institutions have been strengthened through reorganizations, additional human resources and new legislation. Many activities currently implemented have been financed and supported by existing external financial mechanisms. These have made significant impacts at the national and or local levels. Technology transfer however still needs to improve to assist the financial, scientific, technical and technological capacity needed to achieve the objectives of the convention.

Plant conservation efforts are mostly covered under the ongoing protected areas programs. A number of programs are targeting certain aspects such the conservation of food plants and crops. Otherwise local and national efforts need to improve.

CHAPTER 1. OVERVIEW OF STATUS, TRENDS AND THREATS

1.1 INTRODUCTION

1. Located in the southwest pacific at the northeast end of Australia and east of Papua New Guinea, Solomon Islands is an island archipelago that stretches out in a northwest - southeast orientation over a distance of 860 km. The total land area of the island archipelago is 28,450 sq km, making it the second largest country in the insular Pacific. Comprising of a double chain of six major islands and more than 990 smaller islands, atolls and cays, the island group is encompassed by about 10,000 km of coastline and an exclusive economic zone of some 1.34 million sq km.

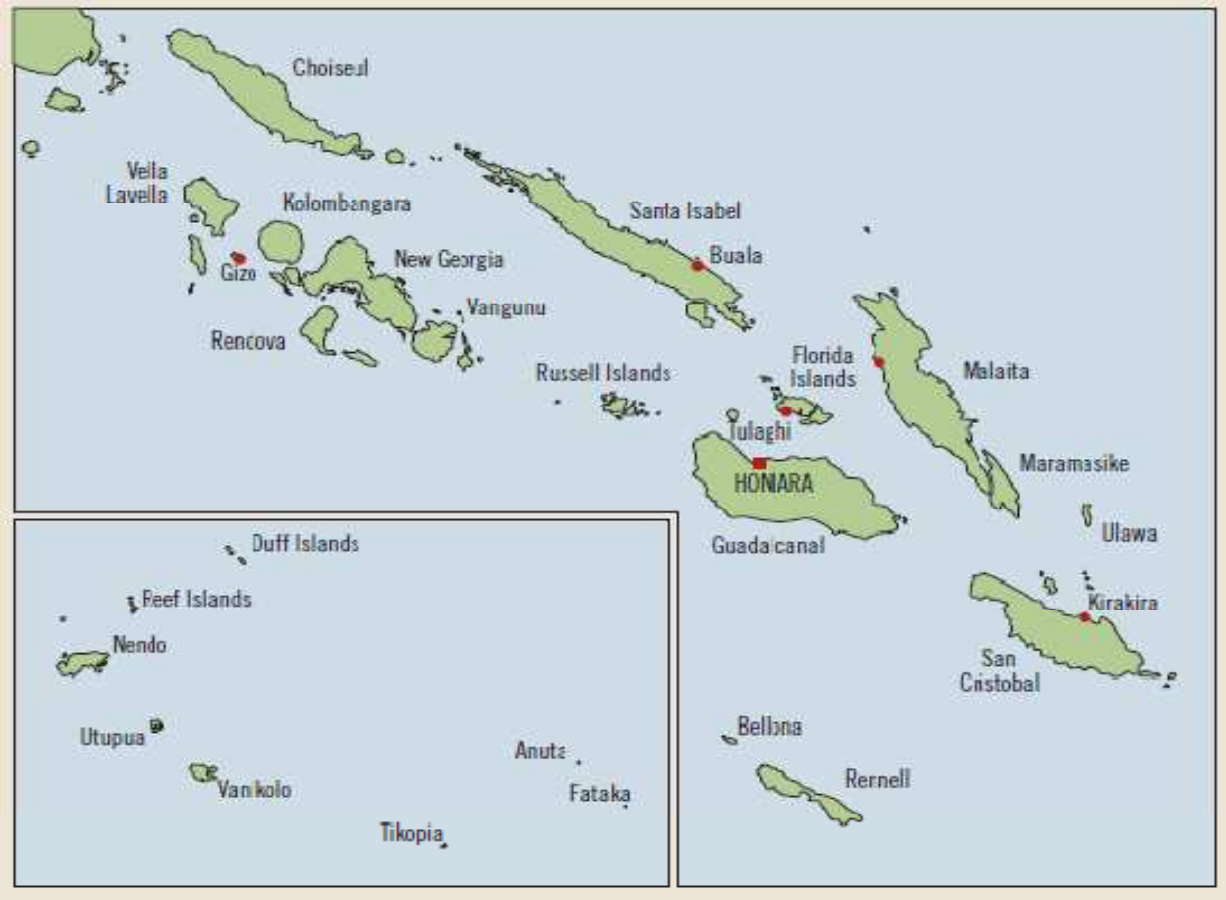

Fig.1 Map of Solomon Islands (adapted from ARDS source)

2. All of the six major islands and other large islands are mostly rugged and mountainous and are covered with tropical moist primary rainforests. The islands are mostly of volcanic origins and a mix of large raised coral atolls, small coralline atolls, and bare sandy islets in lagoon

systems. Seismic activities are common as the islands are located within the Pacific 'Ring of Fire'. There are submerged and submarine volcanoes.

3. The climate is typically tropical with relatively high and uniform temperature all year round as the islands are within the equatorial region. There is high humidity and abundant rainfall of 3500-5000mm per annum. Daily temperatures range between 26^{o}C to 31^{o}C. Night-time temperatures can drop to 17^{o}C.

4. The country's' 513,000 population is ethnically Melanesian and Polynesian, with Micronesian and Chinese migrants. More than 85% of the population live in the rural areas and live a subsistence mode of life style. Their direct dependence on the living environment and thus biodiversity resources is the daily norm and determines and influences their living standards. Only 15% live in urban areas with urban migration increasingly steadily. In terms of land ownership, 85% of the lands are customary owned whilst only 15% are crown land.

5. The management and conservation of land and biodiversity resources had been part of the lifeblood of Solomon Islanders within their island communities and tribal groups prior to the advent of white Europeans. Since then however, new demands of civilization (development) has brought about a new level of resource use patterns unseen before and is having significant negative impacts on the land and the living environment of the islands.

6. Since the last report to the CBD, Solomon Islands continues to increase its efforts in trying to promote the conservation and sustainable use of its resources and strives to improve its efforts in the sharing of benefits arising from the use of its genetic resources.

1.2 STATUS OF BIODIVERSITY

7. The Solomon Islands biodiversity is increasingly being recognized as forming part of the important global centers of biodiversity, the Western Pacific. It is now recognized as part of the Coral Triangle which includes five other countries of the coral triangle region. It is hence of international or global importance. However, there have been threats and threats continue to exist to the country's biodiversity. Despite its many national weaknesses, Solomon Islands has pursued various efforts to arrest these threats.

8. A number of efforts have been pursued to address issues relating to the conservation and management of biodiversity with the support of national and international stakeholders and partners. These include national policies, strategies, and laws. Under the auspices of the Rio Conventions and other MEAs, Solomon Islands has signed on to most relevant global MEAs that address biodiversity issues. These include the Biodiversity Convention and its Biosafety protocol, UNCLOS, World Heritage Convention and regional and global programmes. A number of enabling activities have been implemented and have already been concluded. New programmes are also being implemented by national authorities, NGOs, bilateral partners and other stakeholders.

1.2.1 FORESTS AND TERRESTRIAL ECOSYSTEMS

Status

The terrestrial ecosystems of Solomon Islands basically comprises the forests vegetation, land systems, inland waters (rivers, streams, lakes, swamps,), volcanoes, hot springs and mud pools. These make up the more than 990 Islands that comprise the coastal Island state of Solomon Islands. In general, there has been a slight improvement in the amount of information gathered and the understanding of the terrestrial resources of Solomon Islands which has placed Solomon Islands terrestrial and marine resources as of global significance.

Forests

The Solomon Islands forest has been described and recognized by a number of global and regional experts because of its status and features in the region and in comparison to global forest standards of diversity and quality. These include the following:

- ***Unique vegetation or forest types***[1] - A number of basic vegetation or forest types which are unique to the region have been recognized in the country. These are coastal strand vegetation, lowland rainforest, riverine forest, montane forests and grasslands. Further classification of these basic forest or vegetation types brings the sub types of the basic types to about 26 unique forest types recognized so far.
- ***Centre of Plant Diversity***[2] – With an estimated 4,500 species of plants, Solomon Islands is recognized as a Centre of Plant Diversity, even though low in terms of endemism. Further rigorous work could unveil new species as new and continuous work is still required and is urgent in the Solomon Islands situation.
- ***A Global Ecoregion***[3] – The Solomon Islands Rainforests has been recognized as one of 200 Global Ecoregions which have been analyzed as globally important by global experts.
- ***Globally Outstanding***[4] - The same assessment effort referred to above further ranked the Solomon Islands Rainforests Eco-region in the highest category as 'Globally Outstanding'. Its inclusion in the global 200 list puts the Solomon Islands rainforest as the most biologically valuable eco-regions. The categorization is in recognition of the Solomon Islands as true oceanic islands with high vertebrate endemism, including single island endemism, restricted range mammals and an outstanding 69 bird species found nowhere else on planet earth.
- ***One of three Great Rainforest on the planet***[5] **–** The tropical rain forest of Solomon Islands and New Guinea make up a large tropical rain forest area that has now become one of the three great tropical rainforest regions of the world. The continents of South America and Africa each have one of the remaining two.

1 Wein,L and Chatterton,. 2005

2 Davis et al 1995

3 Olsen and Dinnerstein 1998

4 ibid

5 ibid

- ***Largest block of Tropical Rain Forest in the Asia Pacific region***[6]***.*** The rain forests of Solomon Islands with New Guinea make up the largest block of tropical rain forest remaining in the Asia Pacific region. With the reduction of tropical rainforests in the Asian region through industrial logging, the rainforest of New Guinea and Solomon Islands now make up the largest block now remaining in the region.

Of the total 4,500 species referred to above as occurring in the country, 3200 are known to be native or indigenous. Sixteen (16) species have been listed under the IUCN Red Data list as threatened. Several other species continue to be threatened. These include ebony, rosewood, rattan and some palms[7]. Terrestrial invasive species have not been well documented but a list produced by the Pacific Islands Ecosystem at Risk in Hawaii totaled 368 invasive and potential invasive species for Solomon Islands. These include alien and native invasive species.

It is generally recognized that in Solomon Islands even though plant diversity is high, endemism is generally low. However 57% of palms, 50% of orchids, 75% of climbing Pandanus species are considered endemic[8]. The taxonomic composition of the major plant groups currently known in Solomon Islands are listed below in table 1.

Table 1: Taxonomic composition of the major plant groups in Solomon Islands[9]

Main group	Order	Number of families	Genera	Species
Angiosperms (Dicots)	63	134	680	1942
Angiosperms (Monocots)	20	32	280	841
Gymnosperms	3	5	7	22
Pteridophytes (True ferns)	14	30	105	331
Pteridophytes (Fern allies)	4	4	5	36
Total	**104**	**205**	**1077**	**3172**

Terrestrial fauna

Birds[10] - Bird life International categorized the Solomon Islands Endemic Bird Area (EBA) concept with the "***highest number of restricted range species in any Endemic Bird Areas"*** of the World. This was done after an extensive global analysis by Bird Life International placed the Solomon Islands Endemic Bird Area (198) (with Bougainville) with the highest number (94) of restricted range species of birds than any other endemic bird area in the world. Many of the

6 ibid
7 MECM (2009)
8 PHCG (2008)
9 (adapted from Henderson and Hancock) p 327
10 Stattersfield et al 1998

endemic bird species are restricted to specific islands or provinces. The Solomon Islands also has two other EBAs (199-Rennel, now a World heritage site) and Temotu province (200) which has been grouped with Vanuatu. A secondary EBA covers the Ontong Java, which is one of the largest coral atolls in the world.

The World renowned Ornithologist, Jared Diamond had earlier observed in his earlier research in the country that the level of the evolutionary process of speciation and population variation had been so marked in the country's bird population and documented that "*there is no other place in the world, not even the Galapagos Islands* (made famous by Charles Darwin using finches) *where speciation and population between islands is so marked as in the Solomon Islands"*[11]. Recent researchers have confirmed and made similar observations.

In terms of bird numbers, Solomon Islands currently known species totaled 223 species, a staggering 82 percent of which are endemic and 2 extinct. Recent information have revealed however that 2 are critically endangered, 3 endangered, 14 vulnerable, 23 near threatened and 4 species of increasing concern recently[12.]

Mammals - The total number of mammal species known is 53. With the exception of the larger island of New Guinea, this is higher than other countries of the Pacific islands region. About 36 percent (19 species) of the mammals are endemic. The mammals comprise 41 bats, 8 rats, and 4 opossums. Twenty species are threatened including three bats considered to be critically endangered.

Reptiles – Reptiles are not well studied especially in high elevation of the montane forest and where more work needs to be done. Eighty species are currently known or identified which includes marine turtles. One third of the group is endemic whilst five are said to be threatened. The endemic species includes the world largest prehensile tailed skink (*Corucia zebrata*) and nine species of snakes.

Frogs – Most frogs in Solomon Islands belong to the family *Ceratobatrachidae*[13.] Two species belong to the family *Hylidae* and one each to *Ranidae* and *Bufonidae.* Two species are endemic (*Discodeles malukuna and Platymantis sp*). There are total of 21 species now identified.

Invertebrates – As with many biodiversity groups, the invertebrates are also not well studied and there are not much enough information on this important group. There are 130 species of butterflies known of which 35 are endemic. There are 25 endemic snails and 31 endemic species of cicadas. It has been estimated using Lepidopterian species numbers, that there are 14,511 described insect species and 46,015 total insect species[14] .

Table 2: Summary of selected major groups of terrestrial native fauna in Solomon Islands[15]

Major group	No. of native	% species endemic	No. of species	No. of species

11 Diamond 1976

12 PHCG (2008)

13 Pikacha et al, 2008

14 ibid

15 Updated from NBSAP (2006-2015)

	species		threatened	extinct
Birds	223	82%	23	2
Mammals	53	36%	20	na
Reptiles	80	33%	5	na
Frogs	21	10%	na	na
Butterflies	130	27%	na	na
Snails	(25)	na	na	na
Insects	46,015	na	na	na

Threats and drivers

The recently completed Solomon Islands NBSAP identified general threats as factors causing decline to biodiversity. These are logging, inappropriate land use practices, mining and prospecting, over-exploitation of natural resources, population growth, natural disasters, invasive species, pollution and climate change. In the terrestrial environment, industrial logging and development of large scale agricultural plantations of oil palm, coconut and cocoa, clearance of land for subsistence gardens (inappropriate land use practice) are the major activities that are of direct threat to biodiversity.

Whilst most of the above could be treated only as threats to biodiversity in Solomon Islands, some should also be treated as the main drivers of the threats. These include high population growth which brings with it high demands on the biodiversity resources to meet the needs and wants of a rapidly increasing population. One such great need or pressure of the resource owners is the high cost of education and thereby the need for school fees which is now going beyond the reach of many rural people. For many the only solution to meet those high costs is through industrial logging.

While logging by itself poses the most significant direct and indirect threat to biodiversity itself, the drivers behind logging seems to vary as well. The need of the resource owners themselves to meet various costs in their subsistence life style especially in an economy that is progressively changing from a rural or subsistence mode to a cash economy, is quite obvious in a LDC country such as Solomon Islands that is beset by numerous problems from its own making and those not of its own making.

The need for national income, especially after a long period of poor economic management, which was made worse by a period of internal ethnic strife, provides less alternative choices for the governments. (The government has little control over most of the natural forest which is owned by the resource owners). Prior to the ethnic period of 1999-2002, the production was about two times the sustainable level. After the ethnic tension period the production has gone beyond the sustainable level three to four times and continues on (see figure 2). The implications then for the effects of industrial logging on biodiversity resources are unimaginable.

The rise in external demand for tropical wood is an additional driver to increase in logging and other biodiversity resources of Solomon Islands. This is also exacerbated by the fact that the industrial logging operation is done by so called foreign investors, who are actually loggers from the Asian countries (mostly Malaysian and Korean) who have taken tougher measures on industrial logging domestically. The rise in external demand on all types of biodiversity resources (copra, palm oil, cocoa, vanilla, etc) increases the magnitude of the threats as these all involve the clearing of forested lands.

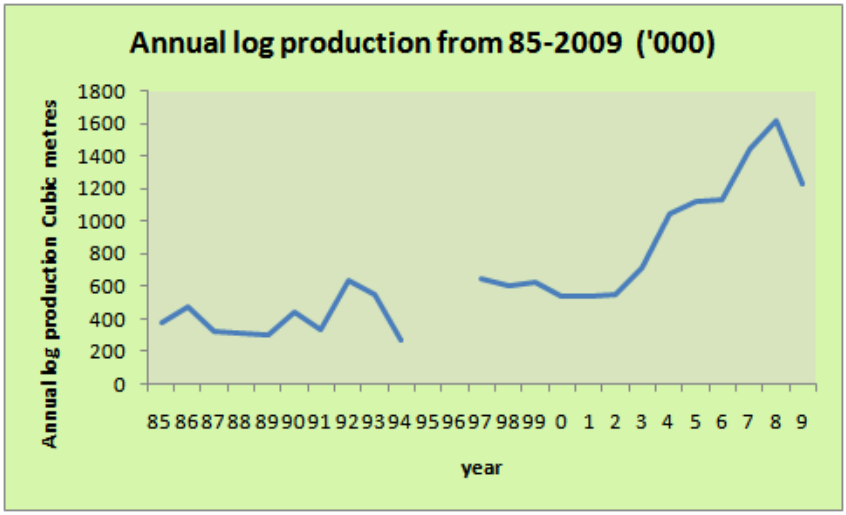

Fig. 2: *Annual log production 1985-2009 – Production has gone beyond sustainable level which is at around 300,000 cubic metres. As can be seen from the graph, production is now many times the sustainable level. (Source – CBSI Annual reports 1985 –2009)*

The increasing movement of the rural populace into urban centres is also one other drivers of the threats to biodiversity resources in Solomon Islands. As urban centres expand needing more space for settlements, more timber and natural raw materials for housing developments and buildings, more resources to feed its population and so forth, so does the exploitation of resources in the rural areas to meet those growing demands. Many of those resources are coming from the forest or terrestrial ecosystems.

Finally, it is should be mentioned that economic reasons are playing a major role in driving the threats to biodiversity. In Solomon Islands, the decreasing value of the Solomon Islands dollar causes inflation to increase making the cost of goods and services to accelerate. Many ordinary citizens are feeling the effects of this and resort to exploitation of their own resources to meet the high cost of goods and services they are now using.

Implications of change

The direct dependency of the majority of Solomon Islanders on biodiversity resources is well known and is a critical fact that even though taken for granted, determines a wide range of domestic policy and programme interventions for sometime in Solomon Islands. It is what shaped rural communities to be resilient (in Solomon Islands standards), in times of natural disasters and national or global financial or economic crisis.

Given the general belief that the threats to forestry ecosystems and its biological resources are declining, even though not enough data is available to verify such generalizations, the impact on the majority of the population will be substantial. This will be in terms of their materials for their settlements or houses, rural industries and food security in the rural areas. In such times, there is increase poverty seen today in the struggles of the rural populace amidst rising economic costs. This status is reflected in the Solomon Islands Human development index which is one of the lowest in the region.

The direct implications of change in the loss of timber resources due to logging, can be seen in rural communities having to travel far to harvest timber for their buildings, or collect other useful materials for their rural life. Some of the materials are no longer there. There are changes to their water supply and other freshwater resources. There is change to the quality of land producing less quantity and quality of food. There are increases in other species never seen as common before in the areas. Social problems have increased such as conflicts between members of the same tribe or of the same families.

There are hydrological changes observed and the general natural environment experienced and enjoyed before was no longer there. Rivers and streams have dried up or have become polluted and reducing all natural aesthetic values of the streams. One of the major problems now confronting the country is the increase frequency of flash flooding which has resulted in significant economic losses and loss of human lives recently. This problem has also been blamed on logging which has caused much soil surface erosion thus increasing surface run off leading to increased flash flooding.

In terms of the economy, the critical issue now for the country is the decreasing quantity of the commercial forest stock which has been predicted to be depleted by 2015. After the depletion of the resource, Solomon Islands would need to find other resources that would replace the earnings from this industry which had formed the largest part of the country's national budget and Gross Domestic Product.

1.2.2 AGRICULTURAL ECOSYSTEMS

Status

Not much of Solomon Islands is suitable for large scale agricultural development activities. Only about a fifth of the country is suitable to some form of large scale agricultural developments. These are located in what has been referred to as Agricultural Opportunity Areas and are about 5450 km^2 in total. Added to this however are smaller areas which are subjected to numerous small scale activities such as coconut grooves in narrow coastal areas and subsistence (Swiden agriculture) gardens in catchment areas and alluvial river plains and valleys. Even though much of the land is not suitable for agriculture it is still used for a number of agricultural activities including gardens and other cash crops thus leading to other problems.

The largest of an agricultural ecosystem in used in the country is the Guadalcanal plains which is also the most fertile of the land as it is basically an alluvial plain. Most of it is currently used for a monoculture oil palm plantation. There are also large cocoa and coconut plantations, small vegetable farms and subsistence farms. While it is most logical to comprehend that all of the large islands could host some form of agricultural activities, it is somewhat not so when smaller islands are considered. Nevertheless, where there are humans especially in LDCs there are bound to be some form of agriculture. Agriculture ecosystems therefore do exist in all areas where there are human populations. This is therefore true even the very small islands of the small islands. In the Solomon Islands, most areas of the country occupied by the traditional landowners who make up more than 85% of the population are used for subsistence garden activities. Whilst this is essential in sustaining rural communities and populations, it also brings with it a wide range of other problems such as soil degradation and erosion.

Plant crops

There are only a few cash crops grown in Solomon Islands for large scale commercial production. These are coconut for copra and coconut oil, cocoa, and oil palm. Smaller amounts of products such as coffee, vanilla, and kava are also produced for commercial export. Henderson and Hancock listed about 120 indigenous species of edible plants in Solomon Islands that are found and harvested from the tropical rain forests. Most of the major crops grown by subsistence farmers cannot be exported due to quarantine issues. The major staple foods grown and or used in Solomon Islands are given in table 3.

There are now more imported food crops than indigenous foods in the country. As a result, many of the local or indigenous food varieties seemed to have been lost as farmers switch and concentrate on the introduced species. There is therefore a general erosion of the agricultural biodiversity in the country. This is especially evident in the variety of local varieties of sweet potatoes, taro, yams, cassava and bananas. Even though traditionally, the local farmers do conserve their local varieties in their old food gardens, the new varieties that have been brought in have attracted them and forced them to lose attention on their local varieties.

Table 3: Major agricultural staple foods grown in Solomon Islands

Major starchy foods	**Major leafy greens**	**Major fruits**
Sweet potato – *Ipomoea batatas*	Slippery cabbage (*Hibiscus manihot)*	Pineapple – *Ananas comosus*
Cassava – *Manihot esculenta*	Ferns – esp. *Diplazium esculentum*	Pawpaw (*Carica papaya*)
Taro – *Colocasia esculenta*	Taro leaf - *Colocasia esculenta*	Watermelon – *Citrullus lanatus*
Yams - *Discorea alata*	Chinese cabbage - *Brassica chinensis*	*Rock melon – Cucumis melo*
Pana – *Discorea esculenta*	Sandpaper cabbage - *Ficus copiosa*	Guava –*Psidium guajava*
Banana – *Musa sp*	Ball cabbage	Five corner – *Averrhoa carambola*
Coconut – *Cocos nucifera*	Pumpkin tips – *Cucurbita moschatum*	Pomelo – *Citrus maxima*
Breadfruit – *Artocarpus altilis*	Water cress – *Nasturtium officinale*	Golden apple – *Spondias cyathera*
Hong Kong Taro - *Xanthosoma saggitifolium*	Water grass - *Ipomoea aquatic*	Bush apple – *Eugenia malacencsis*
Giant taro - *Alocasia macrorhiza*	*Chilli – Capsicum frutescens*	Wild mango – *Mangifera mangus*
Swamp taro - *Cyrtosperma johnstonii*	Jointfur/Jua - *Gnetum gnemon*	Lemon – *Citrus aurantifolia*
Peanut – *Arachis hypogaea*	Wing bean – *Psophocarpus tetragonolobus*	Orange – *Citrus sinensis*
Sago – *Metroxylon sp*	Jujuri /Losi/pitpit - *Saccharum edule*	Pumpkin – *Cucurbita moschatum*
Rice – *Oryza sativa*	Egg plant – *Solanum melongena*	Cucumber – *Cucumis sativus*
Corn – *Zea mays*	Shallot – *Allium cepa*	Sugarcane – Saccharum sp
		Sea almond – *Terminalia catappa*
		Cut nut – *Barringtonia edulus*
		Nuli nut – *Canarium indicum*
		Galip nut – *Canarium salamonensis*
		Manadarin – citrus *reticulata*
		Tomato – *Lycopersicon lycopersicum*
		Soursop – *Anona muricata*
		Green paper – *Capsicum annuum*
		Mangrove seeds – *Bruguiera gymnorrhiza*

Livestock resources

The same can be said of the livestock resources. There is now a low number of cattle from as high of about 20000 to about 5000 now. Even though there are still pig varieties as well, most of what is being farmed now are new breeds. In terms of poultry, local chickens are still there but not much work has been carried out to document or conserve varieties of stock. Solomon Islands is now importing most of its meat products including beef, pork and poultry due to lack of consistent local supplies.

A number of positive initiatives have been ongoing though to improve and conserve genetic stocks. Most of the work has been carried out by the Ministry of Agriculture in the past but most of the research facilities and information have been destroyed during the ethnic crisis and not much work has since been done. Research plots however do exist in field stations and have helped to save some varieties of plant crops. Some collections of plants especially taro, sweet potato, and yams have been sent to the regional germ-plasm centre in the Secretariat of the Pacific Community in Fiji. Some NGOs are now active in this field and are assisting communities

with in-situ and ex-situ collections of rural farmer's agricultural crops. The most active one is currently the Kastom Garden Association (KGA) of the Farmers Network.

Threats

In terms of the local and indigenous species of food crops, the most important threat is industrial logging which destroys all the natural forest where these local species are found and where they strive to survive as part of the forest ecosystem. In terms of the newly introduced crops and the domesticated varieties the threats are inappropriate land use leading to poor quality soils and therefore poor yield, invasive species, climate change and variability disrupting natural growth cycles of the plants. The uses of chemicals (insecticide, pesticides or fertilizers) also have their own threats to the ecosystem and the resources. As there is natural decrease in the natural varieties of the food plants or crops, the declining biodiversity leads to declining gene stocks required to maintain food security in the sector. In terms of the livestock, the threats are mostly invasive diseases that are likely to increase due to climate change and declining stock leading to lasting genetic erosion.

Implications of change

In the local communities the effect of large scale logging is already having adverse effect as they have to look further into the forest for their local food resources. Many of which are already lost from their near surroundings (local extinction). This leads to lack of a proper local diet leading to dependency in imported processed food. The change in landscape also leads to poor quality soils affecting production from local food gardens. Poor yields due natural disasters or to climate change and variability lead to hunger and increasing poverty in the rural local communities. The lack of proper diet in the rural communities leads to health problems increasing cost of health services.

In the national economic terms, problems in agriculture that leads to low production gives rise to lower national productions and lowering economic achievements. The lower levels of livestock mean increasing imports and hence higher import costs. In fact livestock products are currently expensive in Solomon Islands.

1.2.3 INLAND WATERS/FRESHWATER

Status

Solomon Islands has abundant water resources in the forms of rivers, streams, lakes, swamps, wetlands and underground water. All large islands of the country have rivers and streams that the rural people depend on for their livelihood. The rivers and streams especially provide protein food sources, drinking water and other essential domestic uses for the people of Solomon Islands. The availability of such abundant water sources to the people especially in the

rural areas is usually a major issue. Smaller islands do have problems with the supply of water as there is not enough water for their use.

The record for biodiversity resources in freshwater systems in Solomon Islands is currently poor with very little or none at all on freshwater plants. In terms of the freshwater fauna however, there is high species richness and variable endemism within Solomon Islands and between and within Solomon Islands[16]. A total of 43 fish species representing 26 genera and 14 families have been identified so far from 31 sites[17]. The NBSAP reported that the same survey by Polhemus above recorded 93 species of Heteroptera representing 28 genera and 12 families with 60% endemism at the species level. A total of 63 species of Odonata were also recorded which represent 37 genera and 12 families with 44% of the species endemic and 1 new to science. There were also 9 species of Gyrinidae representing two genera and 10 species of Simulidae representing two genera recorded. Ninety percent of both groups were found to be endemic. These are summarized in table 4 below.

There is a need to do more work in freshwater systems to assess the status of Molluscs, Crustaceans and Annelids as these do exist in most of the freshwater systems throughout the country but have yet to be documented properly for further investigations.

Table 4. Summary of freshwater species currently recorded from Solomon Islands

Major groups	No. of species	No. of families/(genera)	% of species endemic
Freshwater fish	43	14	na
Heteroptera	93	12	60%
Odonata	63	12	44%
Gyrinidae	9	(2)	90%
Simulidae	10	(2)	90%

Threats

The most important threats to freshwater resources is the siltation that comes from industrial logging, other large scale commercial plantations, alteration of catchment areas through persistent subsistence activities that lowers water flow, invasive species (such as little fire ant, water hyacinth, water grass) and climate change and climate variability. Climate change could now be responsible for many freshwater systems drying up and rivers having lower water flow throughout the year. Many of the freshwater species are most probably declining due to these threats as most rural dwellers these days have expressed lower catches than before. Species decline could also be occurring in highly populated areas where there is overharvesting or

16 Kool, J. et al 2010

17 Polhemus et al 2008

where there is large scale industrial agricultural activities that give rise to a number of problems that affect freshwater systems and their resources.

Implications of change

For the rural populations that depend directly on freshwater systems and their resources, any change affects them directly. Continuous siltation from logging decimates all freshwater fish, crustacean and molluscs populations which the rural people directly depend on for their protein. This leads on to decreasing protein from the rural populace diet which leads to malnutrition. River siltation also affects the coastal marine environment where all the silts end up causing a wide range of other environmental and aesthetic problems. Destruction of water catchment areas causes rivers and streams to dry up and causes the same effects.

In terms of water supply and other domestic and aesthetic uses, lower water levels or drying up of water sources gives rise to a range of problems. Many urban centres of Solomon Islands are experiencing water supply problems due to low water levels or excessive use or polluted water. Lack of or inadequate supply of water affects many economic development activities and gives rise to a range of health issues. In recent years, the frequency of disastrous floods has increased in Solomon Islands causing increasing number of deaths and high economic and environmental costs.

1.2.4 COASTAL AND MARINE BIODIVERSITY

Status

Solomon Islands is basically a coastal island state surrounded by the mighty Pacific Ocean and seas on which its population depends. The coastal marine environment of the Solomon Islands is increasingly being recognized as of global importance. The following works are examples of this recognition.

Bismarck Solomon Seas Ecoregion - Recent work by some NGOs (WWF) and government experts has placed the country under a regional eco-region known as the Bismarck Solomon Seas Ecoregion (Northern New Guinea, PNG and Solomon Islands (up to Makira province) due to the high diversity of saltwater fish and coral species found in the region.
Coral Triangle – The above work and additional work have identified this region as part of a large eco-region now known as the Coral Triangle. The Coral triangle is now one of the most recently recognized marine eco-region of global importance due to the high species and ecosystem diversity observed within the region. The region covers the Philippines, Malaysia (Sabah), Indonesia, Timor Leste, Papua New Guinea and Solomon Islands.

Even though there is high marine species diversity, Solomon Islands has low level of endemicity at the national or sub national level. In terms of the marine flora, Mangrove species in Solomon

Islands identified so far totaled 38 representing 13 families and 15 genera with 43% endemic[18.] The mangrove areas cover more than 60,000 hactares of coastal areas. Some recent assessments recorded 10 species of sea grasses[19]. There are 233 species of marine algae. These comprise 14 Cyanophyta, 121 Rhodophyta, 27 Phaeophyta and 71 Chlorophyta[20] .

In terms of marine fauna, Solomon Islands has high diversity. The most recent and the largest assessment so far was carried out by a team of NGO (TNC) and government experts and covered seven of the ten provinces in the country. That assessment recorded 485 coral species from 76 genera, which placed Solomon Islands in the Coral Triangle, which is recognized as a global coral diversity hotspot and centre of coral endemicity[21]. There are 19 species of sea cucumber, 4 main species of crayfish, 6 giant clams, 3 species of pearl oyster, trochus and green snails. There are a total of 1019 coral reef species identified so far. Marine mammals include 9 species of dolphins, 8 species of whales one dugong species.

Threats

The major threats to marine species and the marine environment are land based sources of pollution especially siltation from industrial logging that is going on at present, general coastal pollution in Honiara and other urban centres, overharvesting of marine resources, climate change and variability, earthquakes and tsunamis, and invasive species.

Implications of change

Many coral reef areas throughout the country have suffered from the siltation from industrial logging. The high population growth has put increasing pressure on marine resources and many coastal fish species and coral species have been seriously affected within the local localities.
Capture fisheries technology have also played a major part in the reduction of fisheries resources. The lack of fisheries management regimes in the rural and local areas has not helped the situation.

Many local areas through the country have been affected by rising sea levels and freak high tides and king tides. As a result many of the coastal areas have now succumbed to the rising sea. Earthquakes and the tsunamis that have been experienced have done much damaged to the coral reefs and thereby fish and other marine populations. In the 8.4 magnitude earthquake in 2007, an island in the Western province (Ranonga Islands) was uplifted about three to six metres and thereby the coastal fringing reef, killing the coral reef and reducing the coral reef areas that have been useful to the local population for their daily subsistence needs. In other areas the coastal areas dropped affecting coral reefs as well.

18 Pillai/Sirikolo –WWF-SI

19 Green et al 2004

20 ibid

21 ibid

The combined effect of the above threats and overharvesting of marine resources have already resulted in low catches and production in many rural areas leading to low protein intake and serious health problems. As the marine environment also provides as source of cash or earning for the rural dwellers, decrease productivity of the inshore marine ecosystem could also lead to increase poverty and hardships. In the oceanic ecosystem, climate change and variability are already affecting the oceanic fisheries production of the region as they influence and determine movement of pelagic fish resources from one area to another.

1.2.6 **MOUNTAIN ECOSYSTEMS**

Status

As a volcanic island nation, one of the main characteristics of Solomon Islands physiographic status are the rugged mountains, hills and ridges. The highest point in Solomon Islands is at Mt Popomanaseu at 2310m on the island of Guadalcanal. The island of Guadalcanal has many mountains that are more than 2000 metres above sea level and numerous mountains that are more than 1000 metres. Choiseul province has one mountain that is more than 1000 metres. Western province also has four mountains that are more than 1000 metres. All the other provinces have at least one mountain more than 1000 metres with the exception of Temotu province.

Not much work has been done in the mountain ecosystems due to access to these areas. Some useful information have been gathered though, from some researchers who managed to get to these areas. The mountains of Solomon Islands are mostly characterized by sub-montane to montane forests. It is said that the sub-montane forests in the Solomon Islands actually appear at an elevation as low as 600m due to altitudinal zonation being compressed in smaller islands (Pikacha WW). The vegetation in sub-montane to montane forests are characterized by stunted trees that are usually covered with moss and usually wet. In the sub montane areas, the understory is usually characterized by covering of montane bamboo species, alpinia gingers, shrubs and creepers. In the montane areas the understory can be completely covered with moss.

Even though endemism is usually high in the montane areas, there is a reduction in the number of species of plants with increasing elevation. The dominant tree species in the montane areas are *Dacrydium* and *Eugenia*[22]*.* Other common trees recorded from the montane areas are: *Cytandra laciniata, C. filiabracteata, C.atherocalyx, C. comminsia and Syzygium sp*[23]*.* Shrubs and small trees include *Pemphis acidula* and the bamboo *Racembambos holtumii*. Ferns include *Gleichinia kajewsjkii*; *Dipteris sp., Davalia sp and Trichomones sp.* Orchids include *Calanthe*

22 Henderson and Hancock 1998

23 Pikacha 2008

triplicata, *Acriopsis javanica*, *Coelogyne asperata*, *C. susanae* and *Grammatophyllum speciosum*[24] .

In terms of the fauna, birds recorded from these mountains include the Solomon eagle *(Haliatus leucoglaster), s*teel blue flycatcher (*Myiagra ferrocynae)*, grey throated white eye (*Zosterops rendovae)*, the pygmy parrot (*Micropsitta fincshii),* and swiftlets. Various bat species were also recorded from the mountain tops including the endangered *Pteralopex anceps.* Frogs include Solomon Islands largest tree frog, *Platymantis guppyi*, *P. solomonis*, *P.weberi*, *Bactrachylodes vertbralis*, *B. wolfii*, and *B.trossulus*[25].

Threats

All the mountains of Solomon Islands are currently intact and are not subjected to any major development activities. More work is required to properly assess and determine the true status of the mountain ecosystems. The most obvious threats at present are logging, mining and climate change and climate variability.

In terms of logging, there is no logging allowed beyond 400m but some loggers have been granted access to these areas depending on suitable topography. The opening of the forest cover at lower elevations does cause warm air to move up through the forest to high altitudes causing changes to cooler montane forest areas. It has been observed that moss forest in some montane forest areas have been thinning out and dying[26] which could be caused by this phenomenon or global warming. The mountains of Solomon Islands are subjected to tropical cyclones which are increasing in frequencies and increase stress on the mountain ecosystems. Natural events such as high rainfall and earthquakes cause increasing landslides in these areas. Whilst there has been no mining as yet in the mountain areas, there have been some prospecting activities in some areas which add threats to the mountain ecosystems.

Implications of change

Changes in mountain ecosystems have many serious implications in Solomon Islands. In terms of biodiversity, the mountains are home to many unique species which could be lost if there are changes in the ecosystem. The mountains are the last places of many endemic species which make them their nesting areas in those cooler areas. As the mountains are sensitive ecosystems, these could be lost if there are slight changes in the mountains.

The increasing effect of global warming or climate change will bring obvious changes to the mountain ecosystems. Hydrological functions are mostly likely to be affected when mountain ecosystems change. As all the major river sources originate from the mountains, any changes in

24 ibid

25 ibid

26 ibid

hydrological functions in the mountains will seriously affect the natural and human populations downstream. Siltation from high elevation logging has already affected river systems with reduced freshwater resources as expressed by rural villagers. Flash flooding has already become an issue as well.

1.2.7 **DRY LANDS ECOSYSTEMS**

Status

There are no natural dry land ecosystems in Solomon Islands. What now appears and develops as grasslands in the country has been the result of human activities of such as slash and burn and an annual fire burn that has not allowed re-growth to occur and has established itself as a significant system that is threatening natural forest ecosystems. The grasslands systems are found mostly in North Guadalcanal and the Florida Islands and to some varying degrees in some of the other islands.

These grasslands are dominated by *Themeda australis, Imperata cylindrica* and *Pennisetum polystachyon*. Herbs that occur in association with these species are *Emilia sonchifolia*, *Mimosa invisa, Polygala paniculata, Uraria lagopodioides* and small herbaceous climbers. Where there are poorly drained soils, *Cyperous spp, Phragmites karka* and *Saccharum spontaneum* are common. Pockets of woody plants such as Crotalaria also occur.

Threats

The grasslands that are present are threatening natural forests and other resources as there is an annual burning of these areas during the mid year period when there is reduced rainfall and there is a tendency for a dry period. The grasslands burning also destroy/degrades the soils of those areas. The fact that the grasslands are expanding is a major concern. The only areas where the grasslands have not expanded are in areas where there are extensive human settlements such as in the capital city, Honiara, where slush green vegetation has recovered and replaced the grasslands. The natural values of such grasslands are not well known but there is a desire to slow down the expansion of these grasslands areas.

Implications of change

The significant change brought about by the expansion of these grassland areas threatens the natural forests thus reducing natural systems and forested areas. The increase in these areas also has some local effects on evaporation and thus rainfall.

CHAPTER II - CURRENT STATUS OF NATIONAL BIODIVERSITY STRATEGIES AND ACTION PLANS

2.1 THE NBSAP PROCESS IN SOLOMON ISLANDS

The NBSAP development in Solomon Islands was lead by the ministry responsible, MECM after earlier challenges and difficulties. The work was completed through a steering committee put together by stakeholders involved in the program. The steering committee comprised relevant government ministries, conservation groups, and non government organizations. Technical assistance were provided by SPREP and additional funding came from various groups including UNDP, SPREP, COMSEC, TNC, CI and SIG. Extensive community consultations were carried out by WWF and TNC. Maraghoto Consultancy was contracted to collate information and formulate the strategy. The National government and all the provinces made a commitment to implement the strategy.

The NBSAP is now a living document that will enable the country to include sustainable use and management of biodiversity into all aspects of development thereby meeting the country's commitment to the CBD agreement. The implementation of the NBSAP will fulfill the obligation of a number of multilateral agreements as well as other mechanisms established under the CBD, such as the Program of Work on Protected Areas (PoWPA) and National Capacity Self Assessment (NCSA) project.

2.2 BRIEF DESCRIPTION OF NBSAP

The development of the NBSAP by the Government in 2007 is a significant step in its planning process that allows it to address environmental issues and biodiversity concerns in the country. As a guiding policy document and national strategic plan, the NBSAP contains important elements that will contribute to its effective implementation. The NBSAP consists of 117 actions and 12 overall themes.

The focus of the NBSAP is directed at accomplishing the objectives of the Convention on Biological Diversity. The actions contained within the plan are mainstreamed into achieving the conservation of biological diversity, the sustainable use of its components and the 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 NBSAP is expected to contribute to the achievement of the 2010 targets through its broader activities. The action plan strategies were also developed to compliment both related international and regional agreements that the country has committed itself to. The current NBSAP is best regarded as a 'build on' plan that supports existing programmes of various stakeholders with parallel visionary activities that all aimed at restoring and managing biodiversity in a sustainable manner.

The Solomon Islands NBSAP with accordance to CBD objectives is guided with the following pillars:

2.2.1 Vision and mission –include guiding principles

Vision: This stated**, '**Solomon Islands unique and endemic biodiversity will remain our natural heritage and cultural identity. Make others know and see our pride in protecting and conserving our biodiversity, sustainable managed for the better livelihood of our nation now and for the future'.

Mission: The mission of the plan is, 'To protect, conserve and promote Solomon Islands unique and endemic biological diversity through sustainable management and utilization for better livelihood and prosperity of all Solomon Islanders'.

Guiding Principles:
The following principles have been adopted as guide for the effective implementation of the NBSAP:

People: Policies must be people and livelihood oriented
Leadership and Governance System: Solomon Islands Government shall ensure that its policies reflect its responsibility and commitments to effectively protect and conserve its biodiversity.
Stakeholder's participation: Shall ensure inclusive stakeholder participation and collaboration in decision making process.
Development: Environmentally friendly development overseen by the EIA process and with the aim of well balanced livelihood for all Solomon Islanders is to be promoted throughout all levels of development. This means that development should be pursued for the benefit of all Solomon Islanders rather than driven by short term benefits for the few. The precautionary and sustainable principles are to be integrated into socio–economic development.
Benefits: People must be aware of benefits and ensure equal benefit sharing
Culture: Our biodiversity is connected to our culture so must be sustainably managed and traditional values recognized.
Resources: People centered biodiversity conservation and intellectual property rights of our sovereign values are protected.
Consistency and Complimentary: NBSAP should be aligned with regional and international commitments

2.2.2 Thematic areas covered or identified

The thematic areas covered under the NBSAP are:

- Mainstreaming biodiversity
- Species Conservation
- Protected area system
- Management of invasive species and genetically modified organisms
- Benefit sharing and access to genetic resources
- Financial resources
- Human resources and capacity building

- Agro biodiversity
- Climate change
- Waste Management
- Alternative energy use

2.3 OVERVIEW OF PROGRESS IN THE IMPLEMENTATION OF THE NBSAP.

A number of relevant programmes are currently being implemented by partners or stakeholders. The following are some examples of the projects being implemented:

- Improving resilience and adaptive capacity of fisheries-dependent communities in Solomon Islands
- Towards sustained and integrated island management: a pilot for improved environmental governance
- ReefBase Pacific
- Assessing needs and management options for improved resilience of fisheries-dependent communities in the earthquake/tsunami impacted western Sol.
- Poverty alleviation, mangrove conservation and climate change: carbon offsets as payments for mangrove ecosystem services in Solomon Islands

The table below provided general summaries of activities relevant to the implementation of the NBSAP.

THEME : MAINSTREAMING BIODIVERSITY	
Strategy goal : *Ensure the commitment of Solomon Islands government and stakeholders to conserving and managing biodiversity is integrated into national legislation, sectoral plans, policies and programs*	
Objective 1: To ensure biodiversity conservation and management are properly legislated at the national and provincial level and integrated into sectoral plans, policies and programs	Many national and provincial legislation already cater for various aspects of biodiversity. These include the Fisheries Act, Environment Act, Wildlife Management and Protection Act, Forest Resources and Timber Utilization Act, River Waters Act etc. A new Protected Areas Act has just been passed by parliament. At the provincial level there is a review of the Isabel provincial Ordinance and development of the Western province draft environment Ordinance. More needs to be done though in terms of legislative developments. In the effort to achieve this objective, some provinces have established Environment and Conservation offices manned with relevant officers e.g. Choiseul, Western, Isabel and Malaita provinces. In Choiseul province, the officers are supported by NGOs and work through a Community organization, the Lauru land Conference. New sectoral plans have now improved in the relevant sectors to integrate biodiversity considerations and support biodiversity conservation and management. Many current activities related to various projects in climate change,

	land management, Coral Triangle Initiative, Conservation management and so forth involve stakeholders meetings, workshops etc and enables the sharing of information which helps to update the stakeholders on biodiversity related activities. The production of the SOE (2008), NAPA (2008), SNC (2010), and the Implementation of the PoWPA have generated volumes of information and knowledge which helps to catalyze efforts towards conservation and biodiversity related activities. The NECDP addressed capacity issues to assist in the monitoring compliance and ensure enforcement of laws and policies. The Wildlife Task Force has been established which includes Police, Quarantine and Customs.
THEME : SPECIES CONSERVATION	
Strategy goal*: Unique plant and animal species are given appropriate levels of protection and are managed sustainably with a better informed public of the significance of the species.*	
Objective 1: To ensure that management measures for indigenous, unique, threatened and endangered species are in place and supported by scientific data	A programme has been established for the development of species management plans. A National Marine Turtles Action Plan 2008 2012 has been formulated, approved and endorsed. A lot of scientific information had been gathered from the Arnavon Island Marine Conservation Area project. Site specific management plan of the AMCA also addressed and cater for the management of other important marine species such as sea cucumber, trochus, reef fishes, milk fish, clam shells, and megapode eggs . Site specific management plans of other conservation areas do the same. Many endemic and endangered are controlled under different types of management restrictions in a number of legislations including the FRTU Act, Wildlife Management and Protection Act and the Fisheries Act. Efforts are in place to collect data on marine mammals including dolphins and Dugongs. Awareness programs are now under way for some marine species. The management of oceanic Pelagic species such as tuna had been a long term undertaking through regional programs of the SPC, FFA and the international community to manage this important global resource. The Solomon Islands had developed a Tuna Management Plan for the management of tuna resources within its EEZ.
Objective 2: To inform the public of the significance of the social, economic and environmental values of species conservation	Many PA programs have their awareness programs that target this objective. The Live and Learn Environmental organization focuses most of its efforts in environmental education programs. All environmental NGOs regard this objective as essential and have programs that are on going on this issue. The MECDM has produced posters and materials for radio and TV for the public which have been used in the various media outlets.

Objective 3: To ensure resources are available to support conservation activities	The SIG has assisted many students to attend tertiary training overseas to improve its human resources in environmental management. The SICHE has introduced a new course in its School of Natural resources to improve its capacity need in this area. Many programs and projects currently implemented have training components that are aimed at improving capacity in this area. The AMCA has a trust fund to fund its conservation activities. Many international NGOs working in the country are leveraging international resources to help relevant programs in country. The new Protected Areas Act has legalized the establishment of a Trust Fund to assist in the development of conservation areas and help other biodiversity related activities.
Objective 4: To ensure Solomon Islands flora and fauna are documented and stored properly	This task is carried through existing programs of protected area developments throughout the country. External researchers continue to assist Solomon Islands support this objective. A program is focusing on indigenous nuts and fruits to develop and promote such resources food and other products. Various efforts continue to collect and improve the knowledge of flora and fauna which are assisting conservation efforts.
Objective 5: Ensure that highly migratory species are protected nationally	A number of such species are protected under the Wildlife management and protection act. The accession of Solomon Island to CITIES has been useful in protection and management such species. Solomon Islands is part of the Coral Triangle Initiative and is implementing various components of the program which also addresses this requirement. The Marine Turtles Action Plan and various other regional action plans have become part of the annual programs of the Solomon islands government and NGOs implementation efforts.
THEME : PROTECTED AREA SYSTEM	
Strategy Goal: *Solomon islands is fully committed to a national PA system by developing appropriate legislation*	
Objective 1: To establish a management framework for marine and terrestrial protected areas by 2012	The new Protected Areas Act 2010 will take care of this objective. The MFMR has established a framework for a Community Based Management (CBM) Approach. The Solomon Islands LMMA is part of this effort. Various management frameworks are being examined for this purpose. The new PA Act will be used to accommodate different models and approaches to conservation management and protection.
Objective 2: To ensure Legislation for PAs are developed and implemented	PA Act already completed and passed by Parliament in 2010. Related regulations are under development and should be completed by end of this year for implementation.

by 2012	A legislative gap assessment has already been carried for this purpose and will guide further development of relevant legislation on relevant issues.
Objective 3: Identify areas of ecological significance, important migratory corridors and breeding habitats for migratory species	The PoWPA has identified areas of ecological significance through an ecological gap assessment captured in the 'Ridges to Reef' report. More work needs to be done on migratory species.
Objective 4: To develop sustainable financing mechanisms for protected area management	The new PA Act has legally established a Trust Fund to assist in the development of PAs. The resources for the fund will come from the SIG Consolidated account.
Objective 5: By 2015 frameworks for monitoring, evaluating and reporting protected areas management effectiveness at sites, national and regional systems, and transboundary protected area levels are adopted and implanted by parties	Frameworks used by stakeholders exist and should assist in this program. The CTI is the best initiative to assist countries to develop and implement this objective.
Objective 6: Establish livelihood initiatives	All PA and conservation area development and conservation of biodiversity related initiatives increase their efforts to address this issue as it is regarded as essential in mobilizing support and is recognized as an integral part of conservation and resources management. Many other programs currently running are assisting in this area. These include donor programs such as the Rural development Program and the Micro projects program funded by the EU, the AuSAID funded Community Sector program, the Taiwanese funded grassroots program and the JICAs grassroots program. The Small Business Enterprise Centre is running various business training courses to assist in the management and improvement of such livelihood initiatives.
THEME : MANAGEMENT OF INVASIVE SPECIES AND GENETICALLY MODIFIED ORGANISMS	
Strategy goal: *To ensure the biodiversity of Solomon Islands is protected from introduced species through legislation, monitoring, research and awareness.*	
Objective 1: Implement strategic planning for invasive species management and strengthen the enforcement and monitoring capacity of	Solomon Islands is currently addressing the issues of Giant African Snail GAS) which has invaded the country since last year and is spreading. The Quarantine division of the Ministry of Agriculture is taking the lead to exterminate or control the species which is currently seen around the city areas of Honiara. The Ministry has recently started implementing a program funded by AuSAID to address the problem of GAS.

responsible agencies (public and private sectors)	The only relevant plan at present is the regional action plan on the issue and Solomon islands is taking part in the implementation of the regional plan through SPREP
Objective 2: To strengthen appropriate border control legislation to reduce threats from new invasive species and genetically modified organisms being introduced into the country	Quarantine legislation already exists and should help to address the issues. Lack of resources has seen weaknesses in control and thereby the appearance new invasive species such the giant African snail.
Objective 3: Develop and implement national invasive species management strategy to manage established invasive species within the country	Many invasive species are known and individual programs and projects are doing what they can to address the issue on site but there is yet to be a national invasive species management plan.
Objective 4: Complete and implement the National Biosafety Protocol Strategy	The National Biosafety Strategy and Action Plan is yet to be completed.
Theme : Benefit sharing and access to genetic resources	
Strategy goal : *To ensure that access to genetic resources are properly managed and controlled as well as the benefits from the use of our genetic resources are fairly shared through appropriate legislation, ordinances and access protocols.*	
Objective 1: Ensure appropriate and regulatory framework to control access to genetic resources are upheld	Some relevant aspects of the issue is covered under the new PA Act 2010. Current efforts are externally initiated through bio prospecting efforts of research organizations. Most initiatives are done under the International Plant Genetic Resources initiative. Some existing Material Transfer Agreements seem to be the other relevant instrument at present.
Objective 2: To ensure that benefits are shared according to the set guidelines/criteria	Guidelines are yet to be developed?
Objective 3: Proper coordination between responsible ministries dealing with genetic resources	Information sharing occurs with the relevant government ministries but are not properly coordinated and do not occur within a well developed framework.
Objective 4: To ensure recognition of ownership of these resources/intellectual property rights(Traditional knowledge and its cultural aspects)	Relevant regulations can be developed under the new PA Act 2010

THEME : FINANCIAL RESOURCES	
Strategy goal: *Sustainable financing mechanisms are in place so that biodiversity is effectively managed for long term sustainability of the environment.*	
Objective 1: To ensure that work plans and activities are fully funded and that funds are effectively disseminated and managed	The implementation of the NBSAP has been improved with various interventions of the Global Financing mechanism, the GEF. Other donors have come into assist. These include EU and AuSAID.
Objective 2: To enhance the capacity of personnel to actively manage financial obtained.	The Institute of Public Administration has been increasing its effort to train relevant government officers in financial management. NGOs have their internal training facilities in this issue.
THEME : HUMAN RESOURCES AND CAPACITY BUILDING	
Strategy goal: *Empower stakeholders to effectively participate in the conservation and sustainable use of biological resources*	
Objective 1: Ensure that biodiversity components are included in the formal education curriculum for primary, secondary and vocational levels	There is improvement in inclusion of this issue in the formal curriculum in the formal system. The new Primary Science books are a good example. Various topics in the secondary school science and agriculture subject have already included relevant topics. These could be reviewed and improved. Some community organizations are already involved in relevant environmental issues such as in biodiversity and climate change issues.
Objective 2: Ensure the resource owners and public at large are better informed about biodiversity components	There is already increasing awareness about biodiversity components as many groups have been involved in raising awareness. The SICHE has been supported to host an environmental information centre to assist in disseminating information to the public.
Objective 3: Ensure that more training in the area of biodiversity is carried out	Most relevant training in forestry, agriculture, environment and fisheries are carried through SICHE. Otherwise external overseas training in higher tertiary institutions continues in this field. On the job training has also been carried out through other overseas training institutes.
THEME : AGRO BIODIVERSITY	
Strategy goal: To ensure that agro biodiversity species of Solomon islands are conserved and sustainably managed with a better informed public of the importance of agro biodiversity	
Objective 1: Undertake research and inventory of the agro biodiversity in Solomon Islands	Some projects are currently involved in raising awareness on agro biodiversity issues. Some NGOs such as Kastom Garden are focuses in this area and have achieved good results. Some groups have also produced books focusing on agro biodiversity. More needs to be done though.
Objective 2: Strengthen the conservation , management and utilization of agro biodiversity of Solomon islands including traditional	The Kastom garden group and other donors are assisting in this area with various local communities and schools. The SICHE is also increasing its efforts through education in this field.

knowledge	
Objective 3: To promote sustainable land use practices	The Ministry of Agriculture and NGOs are promoting sustainable land use through various programs. The UNCCD land management program is also focusing its effort in this area.
THEME : CLIMATE CHANGE	
Strategy goal: *To ensure that pressures, impacts and mitigation measures of climate change are adequately supported and addressed to conserve the country's biodiversity*	
Objective 1: To strengthen biodiversity and mainstream related work with appropriate legislation and policies.	The efforts under the Climate change program takes into account a number of biodiversity issues. These include the NAPA and the SNC. Other national strategies such as the NECDP address other relevant issues such capacity issues.
Objective 2: To ensure that the general public is aware of the climate change issues affecting biodiversity issues.	Many programs of NGOs and the SIG incorporate CC issues and biodiversity. Many of the initiatives of the CC program relates to biodiversity issues and raised awareness with various stakeholder involved in those programs. Media presentations have increased both in the print and visual media. Some community organizations are implementing CC programs which relate to biodiversity issues.
Objective 3: To enhance the capacity of personnel to tackle climate change work through appropriate capacity building programs	Relevant personnel from stakeholder groups have been attending organized short term training on the issue. The recently completed SNC fro Solomon Islands involved relevant training in vulnerability and adaptation to enable studies to be carried out in country.
Objective 4: To ensure the comprehensive understanding of the effects of climate change and sea level change in Solomon Islands through scientific research.	The CC division in MECDM has improved its capacity to assist in this area. The establishment of the CC division at divisional level has been very important and shows the SIG commitment to this issue. Various donors such as the ADB are also implementing relevant projects in adaptation which should assist in training, collecting data and research to understand the issues and develop adaptation strategies.
THEME : WASTE MANAGEMENT	
Strategy goal: To effectively manage wastes to minimize or prevent negative impacts and non biodegradable waste on the biodiversity of Solomon Islands.	
Objective 1: Integrate biodiversity issues into new and existing legislation. Develop and implement a national waste management Act/ legislation	Current legislation already addresses biodiversity issues including the new Protected Areas Act 2010. New legislations are being considered that will address gaps in legislated biodiversity issues. Law enforcement agencies continue to be supported to build their capacity which could help them to work towards achieving this objective. A national waste management plan has already been produced and is currently under implementation.
Objective 2: To ensure better informed public on	Awareness materials have been developed and are already in use for public awareness purposes.

waste related issues	Some projects are also new and are focusing on cleanup programs. A major program is being supported by the World Bank and implemented in Honiara in conjunction with the City Council. Provincial urban centres are implementing their own waste awareness and cleanup programs.
Objective 3: To ensure monitoring of waste on the environment and sound decision making pertaining to waste related issues.	The MECDM has started to develop some monitoring capacity which includes some monitoring equipment. More needs to be done on large scale monitoring including industrial monitoring
THEME : ALTERNATIVE ENERGY USE	
Strategy goal: Promote alternative sources for all Solomon Islanders which will reduce impact on biodiversity	
Objective 1: To ensure that alternative energy sources in the country are explored and relevant cost effective sources are utilized.	Alternative energy sources are already in use in the country but need to be developed and promoted further. These include solar, hydro and wind. Mini hydropower systems in the country are in Buala town in the Isabel province, Malu'u substation in the Malaita province and Bulelavata and Biula in the Western province. Some donor programs are focusing on solar distribution systems to the rural areas. There has been a significant change in the use of solar lighting in the rural areas. More research work still needs to be done into renewable resources. The private sector companies are increasing their promotion of alternative energy sources. These include the Willies electric company which has been carrying out a nationwide promotion of solar energy. A GEF project on renewable energy that has been implemented through the World Bank and the Central Bank of Solomon Islands has not been successful. There have been a few examples of bio fuel development which has been tried in vehicles but this needs further research and trials.
Objective 2: Strengthen policies and legislation pertaining to energy use	The PIGGAREP programme has addressed a number of relevant issues. Draft policies have been produced and are still to be finalized. A few programmes are ongoing through private sector supported by donors.
Objective 3: Better informed public on the use of forest as source of energy	

2.4 CHALLENGES TO IMPLEMENTATION OF THE NBSAP

Biodiversity is very important to the socioeconomic environment of the Solomon Islands. To the 85% of the rural population it is critical. Life depends very much on it. The Solomon Islands recognizes the importance of biodiversity and tries its best with whatever resources it can to conserve, protect and manage the biodiversity resources within its jurisdiction. The many NGOs, community groups and the private sector recognize this importance and contribute what they can to manage the biodiversity of Solomon islands not only for the people of Solomon Island but for the global community as well. The NBSAP is now a main policy document that is critical to the continuous management of the country's biodiversity for its survival. Many stakeholder groups have taken on the challenge and are doing their best to improve current efforts. As a least developed country, the task for Solomon Island is immense. The implementation of the NBSAP has seen many collaborative efforts by the relevant government departments, private sector organizations, academic institutions, research organizations, statutory bodies, CBOs and NGOs and is encouraging. However, more needs to be done. The constraints and challenges observed in the current implementation of the NBSAP are many but include:

- Staff shortages
- Lack of Technology transfer
- Capacity building issues
- Impacts of climate change
- Funding
- Socio cultural attitudes

These challenges coupled with problems associated with and inherent with LDCs or SIDS continues to render the current strategy implementation weak.

CHAPTER III - SECTORAL AND CROSS-SECTORAL INTEGRATION OR MAINSTREAMING OF BIODIVERSITY CONSIDERATIONS

3.1 EXTENT OF INTEGRATION OR MAINSTREAMING

3.1.1 National level

Mainstreaming and integration of biodiversity considerations continue to be major issues for Solomon Islands even though the need for such an approach or action at all levels has increased significantly. The most urgent need is to institute the most effective mechanisms that will give result to plans and wishes for it to happen where it is most needed. There are current plans and action taken at various levels that allows for mainstreaming to happen and actually requires it to happen but there has been no effective national mechanism to make it an effectively coordinated outcome of decision making.

At the national level mainstreaming occurs more effectively through the periodically formulated national development plans which are formulated about every three years. (There is no sustainable development plan.) The current one is the medium term development plan for the year 2009 -2011. Various relevant biodiversity related activities are integrated into this document which encompassed many of the national activities of the relevant government sectors.

3.1.2 Sectoral level

At the sectoral level a number of actions have been taken which has improved the Solomon Islands situation in terms mainstreaming and integration of biodiversity considerations at the sectoral level. These are briefly described below.

3.1.2.1 Environment and Conservation

There have been significant changes to the institutional arrangements of the environment sector which had involved amalgamation of various government agencies into one key ministry within the national government system. This Ministry is now the Ministry of Environment, Climate Change, Disaster Management and Meteorology. The key national agency in terms of the environment and biodiversity issues is the Environment and Conservation Division of this Ministry. This division has now improved its manpower needs and continues to address the challenges expected of a SIDS environment agency. A number of key actions have been taken within this ministry to promote mainstreaming and integration of biodiversity considerations. These are as follows:

a. ***National Environment and Management Strategy (NEMS)*** – Even though already out of date the NEMS still exists and provide some direction for policy and programme development.

b. ***National Biodiversity Strategy and Action Plan*** (NBSAP) – The NBSAP was completed in 2009 and guides the country in implementing prioritized themes based on the requirements of the CBD. Twelve themes have been identified with 'mainstreaming' being the number one thematic priority. The NBSAP seems to have taken over many of the key objectives of the NEMS.
c. ***National Environmental Capacity Development Action Plan NECDP)2008-12 –*** This plan is cross sectoral and is the outcome of the Capacity Development Initiative covering the Rio Conventions. The Solomon Islands identified five main goals with its own respective actions which the country hopes will assist in addressing capacity issues relating to the implementation of the Rio conventions at the national level.
d. ***National Marine Turtles Action Plan –*** This plan provides the guidance for the management and conservation of marine turtles at the national level
e. ***National Solid Waste Management Strategy and Action Plan 2009 – 2014*** – This plan is the first solid waste management strategy for the country and identified 12 priority activities to be implemented within the five year period. The effects of wastes on biodiversity are a concern.
f. ***National Adaptation Plan of Action (NAPA)*** – Solomon had developed its national adaptation plan under LDC funding and hopes to address impacts of climate change through adaptation measures. Impacts of climate change are significant and this plan is an effort to address those impacts and potential impacts.
g. ***National Disaster Risk Management Plan*** – This plan is the country's second and is an effort in taking a holistic approach to disaster management. One of the most significant causes of biodiversity losses is through natural and man- made disasters and this plan would hopefully assist in addressing potential impacts of disasters.
h. ***Ridges to Reefs Conservation*** – This effort is part of the work on the Programme of Work on Protected Areas and identified current gaps in legislation, policies and programmes relating to protected areas. The effort identified priority areas for protected areas development.
i. ***State of the Environment Report (SOE)*** – This is the second SOE compiled in the country. This being the first one as required under the Environment Act 1998. The report also includes relevant recommendations for further actions.
j. ***Second National Communications (SNC) –*** The Solomon Islands has completed its SNC as required under the UNFCC. The report includes examinations of potential and current impacts of climate change on biodiversity and ecosystems and also recommended further actions on adaptation measures.
k. ***GEF Small Grants Programmer(GEF – SGP)*** – The Solomon islands formulated its first Country Strategy for the implementation of the GEF SGP for the fourth operational phase of the programme and identified biodiversity protection, climate change adaptation and mitigation and land management as its thematic areas of focus and decided that the whole country be its area of focus.

Environment Legislation

One of the main or key processes through which integration or mainstreaming is carried out is through the development of relevant legislation. The Solomon Islands has promulgated the

following legislation in recent years: Environment Act 1998, Wildlife Management and Protection Act 1998, and the Protected Areas Act 2010.

The main legislation covering environmental issues in Solomon Islands is the new Environment Act 2008 which has now come into force following the gazettal of its Environmental regulations 2008. The Act provides for an integrated system of development control, environmental impact assessment (EIA) and pollution control; including:

- Prevention, control and monitoring of pollution including regulating discharge of pollutants to air, water or land and reducing risks to human health and prevention of degradation of the environment;
- Regulating the transport, collection, treatment, storage and disposal of waste and promoting recycling, re-use and recovery of materials in an economically viable manner; and
- Complying with, and giving effect to, regional and international conventions and obligations relating to the environment.

The Environment Act has considerable power by virtue of article 4 (1) which states that in the event of conflict between the Act and other acts, the provisions of the Environment Act shall prevail.

Regulations under the Act have been completed and have now come into force. The regulations cover detailed requirements for EIA. The Act has a schedule which list all 'prescribed' developments that will need to undergo some form of EIA. All prescribed developments require a simple assessment through a "screening" or "scoping" process, to see what form of additional assessment is required. Most development projects require a public environment report (PER), while many major projects will also need a second stage of appraisal which include technical, economic, environmental and social investigations presented in an EIA or environmental impact statement (EIS) report.

Protected areas

The development of protected or conservation areas is a major tool in the integration or mainstreaming of biodiversity. Even though Solomon Islands has not had many legally established protected or conservation areas, the amount of effort shown in recent years in this issue has been very reassuring. The efforts has manifested itself in more than 100 known, managed or secured protected or conservation areas (see table 5 below). These comprise different types of terrestrial and marine ecosystems. Some of the large areas that make up this list already add up to more than 5 % of the total land area of Solomon Islands.

Table 5. Known Protected, Managed, Secured areas by provinces

Province	Name of area	Total no. of area
Choiseul	Parama MCA, Rabakela MCA, Redman MCA, Zinoa MCA, Chivoko MCA	5
Western	***Tetepari Island***, Alale-Grant Island MPA, Bakiha Reef MPA, Barasipo, Baraulu-Bule Lavata, Bereho, Bari, Bebea, Buni, Duduli Rereghana, Dunde, Dunde Shark Point, Grant island- Patuparaona MPA, Ha'apai, Hot spot Reef MPA, Inazuru Island MPA, Jericho Reef MPA, Karikasi Reef MPA, Kida, Kindu, Kogulavata reef MPA, Koqu Rua, Kozou, Kuaboka to Lollua, Ladosam Reef MPA, Lodu Hokata, Modiudu, Naru reef MPA, Nusatupe reef MPA, Nazareth, Niami reef MPA, Niumata, Njari Reef MPA, Nusahope Mangrove, Nusahope –heloro, Nusa Roviana, Olive, Omavua, Petu Island MPA, Pezokombukombu, Pipa-Kororo, Poro, Pusuinau Reef MPA, Rendova Harbour, Renjo Reef MPA, Reva, Rosiamata, Saeraghi Reef MPA, Saika, Sasarauru, Sasavele, Sauka, Suvania Reef MPA, Tabezaru, Tetepari MPA, Tibitibi, Tiraranju Reef MPA, Tokekolo, Vainoturu Island MPA, Variparui Island MPA, Varu North Reef MPA, Vena Island MPA	65
Isabel	**Arnavon Is,** Baghafu tabu, Ghanitapi Tabu, Hetaheta Tabu, Kapina Tabu, Kia District, Malole Tabu, Mamarava Tabu, Peanaha Tabu, Putuo Tabu, Rapita Tabu, Sasakolo, Tobe Tabu, Vasigoro Tabu, Zaosodu Tabu,	15
Central	Leva Point, Maravaghi, Opele, Penjapenja reef MPA, Roderic Bay, Salavo, Sisili, Taburu, Tobo, Tulagi, Vonga Pondala MPA,	12
Guadalcanal	Alite, Kere hira, Marapa Niu, Niuhoa, Nu'u Marere, Paipai, Simeruka, Wahere, Waimamauru, **Komarindi Catchment**	10
Malaita	Abalolo-Gwaedalo-Allau(AGA), Kibelifolu, Loreta-Lalana-Su'u	3
Renbel	**East Rennel World heritage site**	1
Makira	Makira Bauro Highlands	1
Temotu		0
Total		**112**

3.1.2.2 Agriculture

The Ministry of agriculture and livestock is responsible for agricultural biodiversity (crops and livestock) issues in Solomon Islands. The sector is one of the largest sectors in terms of area of coverage, population involvement, and national production and income.

The sector is currently implementing the Sustainable Land Management project which is part of the UNCCD enabling activities. This project will address land degradation issues and hopefully identified ways of improving farming in degraded areas in the country and address other biodiversity considerations.

Many other efforts of the country under this sector are addressed under the International Plant Genetic Resources (IPGR) mandate.

The major strategy implemented at present is the Agricultural and Rural Development Strategy which was formulated with major assistance from donors (AuSAID and EU). This strategy covers

mostly agricultural biodiversity issues in the rural setting and promotes sustainable use. The main priorities include improving local governance and service delivery, increase growth in agriculture and beyond, management of natural resources and strengthening local and international partnerships. A recent project focuses on the latest invasive species infestation which that of the Giant African Snail. A number of NGOs have also been involved in the sector. One of the major NGO now involved in this area is the Kastom Garden Association (KGA).

The main legislation in the sector is the Agriculture and Livestock Act, Agriculture Quarantine, Act and related regulations. Solomon Islands is also party to a number of international instruments which also governs major issues.

3.1.2.3 Fisheries

The Ministry of Fisheries and Marine Resources is responsible for both oceanic and inshore fisheries even though a large part of its current functions focuses on oceanic fisheries which deal with tuna fisheries. The functions of the ministry are guided by the Fisheries Act 1998. The Act provides the legal basis for a comprehensive and responsive national fisheries management regime. It also provides for the precautionary approach to fisheries management and encourages the long term sustainable management of fish stocks. The Act has a range of provisions that can be used to advance the conservation of the country's marine resources. One of the requirements of the Act to formulate management plans for specific marine species or type of fisheries that can be effective in managing and conserving marine biodiversity. Solomon Islands is also party to many regional and international instruments as shown in table 6.

The Ministry continues to be involved in a number of survey and assessment activities focusing on economic marine species. Many of its activities also involved the establishment of MPAs and Locally Managed Marine Areas (LMMA), throughout the country. The LMMA programme in Solomon Islands is coordinated from the Ministry of Fisheries and Marine Resources. The Ministry is also one of the key government agencies that have been involved in the Convention's enabling activities, which includes the Regional International Waters Programme, and the South Pacific Biodiversity Conservation Programme. They have been key partners in recent Rio convention related programmes and other MEA related programmes. All these programmes all have elements of mainstreaming and integration.

One of the large programmes that currently involve the sector is the Coral Triangle Initiative. This involves many countries, NGOs and Civil Society groups as partners. A number of international, national and community groups are also involved in the sector. Examples include NGOs and Civil society groups, Industry groups such as the large fishing companies, fishermen in communities, and the reef owners. A number of NGOs are involved in some of the well known Conservation area projects such TNC in the Arnavon Islands Marine Conservation Area, WWF and the Tetepari Descendents Association in Tetepari Island and the communities of Rennell Island in the East Rennell World Heritage Site. The World Fish Center is involved in

applied research activities and develops potential fisheries products and assists in gathering information for fisheries management purposes.

Table 6. Global and regional marine related instruments that Solomon Islands is party to[27].

International Instruments (Legally and Non-legally Binding)	Regional Instruments (Legally Binding)	Regional Instruments (Non-legally Binding)
UNCLOS UN Fish Stocks Agreement1 FAO Compliance Agreement FAO Code of Conduct for Responsible Fisheries International Whaling Convention	Forum Fisheries Agency Convention Nauru Agreement (including FSM and Palau Arrangements) Niue Treaty US Multilateral Treaty WCPFC Convention Noumea Convention	Pacific Plan Pacific Islands Regional Oceans Policy Apia Policy SPC Fisheries, Aquaculture and Marine Ecosystems Strategic Plan FFA Regional Monitoring, Control and Surveillance Strategy FFA Regional Tuna Management and Development Strategy

3.1.2.4 Forestry

The Ministry of Forestry and Research is responsible for forest development activities. Its mission is to promote, conserve and manage forest resources which should continue to benefit the environment and people of Solomon Islands. It is currently struggling to manage the controversial industrial logging operation that is the main cause of biodiversity loss in the country at present. The sector has formulated a number of initiatives in the past to try and arrest the runaway activities of the industrial loggers but has not managed to come up with the desired outcomes.

The sector is responsible for a number of national legislation. The key legislation is the *Forest Resources and Timber Utilization Act 1969* and its regulations. The Act is out of date and has been the main stumbling block in efforts to improve the management of industrial logging. One of the other main functions of the ministry is to manage the national herbarium, most of its collection which has been moved to Fiji during the ethnic crisis of 1999-2003. The Ministry is working with some International NGOs to implement a major Forest conservation programme focusing on some of the major unique forest ecosystems in the country.

The sector's main players are the logging industry (who are the main exploiters of the timber), international and national NGOs, and communities working in partnerships to conserve and manage the forest and its resources sustainably. It is important to know that most of the forest resources of Solomon Islands are under the custody of the local communities who own them.

27 Adapted from Kinchy et al 2010

3.1.2.5 Mining

Even though mineral prospecting activities have been going on in some of the main islands of the country since the colonial times, mining is still at its infancy with only one mine in Solomon Islands. This is the Gold Ridge mine on Guadalcanal which has just started gold production again this year after it was closed down at the height of the ethnic crisis. Mineral prospecting currently focuses on gold, silver, and nickel. There are known deposits of aluminium on Rennell Island in the Rennell and Bellona provinces and Wagina Island in Choiseul province.

The key legislation in this sector is the Mines and Minerals Act of 1990 and the Mines and Minerals regulation 1996. There is also a Petroleum (Exploration) Act and some policies based on Mine closure and Offshore Minerals Policy. A policy on the Continental shelf has also been completed to meet requirements of the UN Law of the Sea.

The main requirements of the Mines and Mineral Act and the Regulation on the need for environment impact assessment on any mining development has been the main effort so far in integrating biodiversity consideration in this sector. Apart from that the Surface Access Agreements negotiated by the prospecting companies and the landowners usually takes care of many biodiversity considerations at the prospecting stages of mineral exploration.

The first and the only gold mine, the Gold Ridge mine underwent a comprehensive feasibility study and environment impact assessment for its original Mining License approval. It also has a comprehensive and well monitored environmental management plan for its continual operation.

3.1.2.6 Energy

The energy sector is a key sector in the country that is responsible for power generation. The key government agency is the Energy division which is part of the Ministry of Mines, Energy and Rural Electrification. The division is responsible for the Solomon Islands Electricity Authority (SIEA) which is the established under the Electricity Act. The SIEA is the body responsible for power generation in the country, currently using fossil fuels. The Energy division is also responsible for the fuel suppliers, which at present are Mobil Oil and South Pacific Oil.

A number of proposals in the past to exploit other forms of energy have not come to fruition but a hydropower proposal in the past for the capital city of Honiara underwent an Environment Impact study. Another proposal for a Hydropower development is current and work is ongoing with the feasibility studies already commencing. A full environment impact assessment study is expected shortly.

The use of solar power for lighting and other community based uses is increasing in many communities throughout the country and is a significant development that is good for the environment. A draft National Energy Policy Framework is yet to be finalized for its implementation.

3.1.2.7 Water Resources

The Ministry of Mines, Energy and Rural Electrification also has a Water Resources Division that is responsible for water resources management and utilization. The division is also responsible for the Solomon Islands Water Authority (SIWA) which is also established under an act parliament, the Solomon Islands Water Authority Act. The SIWA is the body responsible for water supply in the capital Honiara and other provincial headquarters.

The division also addresses water and land issues through its EIA requirements under the *Mines and Minerals Act 1990.* The *River Waters Act* which is also administered under this division provides for the control of river waters and its equitable and beneficial use thereof. The Act however does not have national application and applies only to designated areas. The division is currently implementing a Water Resources Management project which is part of a regional GEF funded programme aimed at improving water resources management in the region.

3.1.2.8 Education

The education sector is the largest of all sectors in terms of the government national budget in Solomon Islands. At the formal level, the education sector comprises a various levels: early childhood education (ECE), Primary School education, Secondary school education, Tertiary education and a Technical and Vocational Education and Training sub sector. In 2009 there were 512 ECE centres with a total enrolment of 21,045 children. In the Primary level, there were 505 schools with a total enrolment of 115,728 students. In the secondary level there were 193 schools with a total enrolment of 38,445 students. In 2008 there were 27 Rural Training centres with an enrolment of 2,753 students. There were also 2,435 enrolled at the Solomon Islands College of High Education which is a tertiary institution in the same year. Extension centres of University of the South Pacific and the University of Papua New Guinea would enroll another 4-5,000 additional students.

The Ministry has instituted a number of significant policy changes in recent years ranging from early childhood education, basic education and a Tertiary education policy. There is a national education strategy that guides all activities within the sector. Major policy initiatives such as the Fee Free Education and Basic Education policies are encouraging more children to attend school. Major national developments in the sector are currently guided by the National Education Action Plan 2010-2012 whilst developments at the provincial level are guided by the provincial education action plans 2009-2012 which are formulated for each province. The key functions of the ministry are covered under the Education Act and the above key national policies on education.

Environmental and biodiversity topics are mainstreamed and integrated into the national curriculum. The Solomon Island runs a single national curriculum up to form five levels. The form six and seven level are covered under a regional South Pacific curriculum. The new primary environmental science books have been the most outstanding of the new initiatives in

mainstreaming biodiversity considerations in this sector. The secondary levels also have their own relevant environmental topics. The only tertiary institution in the country, the Solomon Islands College of Higher Education (SICHE) has various schools that are relevant in mainstreaming biodiversity considerations into the courses they are running. These are the School of Natural Resources, School of Marine and Fisheries and the School of Education. The School of Natural Resources offers courses in agriculture, environment and forestry. The school of education runs teaching courses for early childhood, primary, secondary and technical and vocational training teachers.

The School of Natural Resources has a separate campus for its environment and forestry field training at Kolombangara Island in the Western province. There used to be an agriculture institute as well in the Malaita province but this is yet to be revived. There are two university extension campuses in the country. These are the University of the South Pacific and the University of Papua New Guinea extension centers. These extension centres also offer relevant environmental and biodiversity extension courses. Many students from Solomon Islands also attend tertiary institutions in Fiji, Papua New Guinea, New Zealand and Australia and a significant number are enrolled in environmental and biodiversity courses. This has resulted in an improvement in the number of graduates in environment or biodiversity related fields who have taken up positions within the government, private sector and civil society or non government organizations in the country.

In the informal sector, there is no formal programme running but most NGOs, Civil Society organizations and community organizations currently implementing various environmental related projects and programmes are doing various awareness and education programmes through available media. Many of the projects' related community meetings and consultations, surveys and research carried by many of the groups in environmental related work involve a substantive amount of information on biodiversity related issues. One of the recently completed programmes implemented under this sector is the Rehabilitation and Restoration Programme (RARP) which was aimed at the 2008 Earthquake and Tsunami damaged schools in the Western and Choiseul provinces. This project had a major environmental component which involved replanting of trees and other related activities.

3.1.2.9 Health

The health sector does not directly deal with biodiversity issues at present but has some relevant activities and programmes that relate to biodiversity. In terms of environmental issues however, it has direct connections through the requirements of the Environmental Health (Public Health Act) Regulations. This regulations deal with public health issues and how to deal with them when they occur.

In other relevant aspects, the sector deals with the promotion of biodiversity resources as essential to the promotion of good health and prevention of lifestyle diseases.

3.1.2.10 Tourism

The tourism sector is still at its infancy in the Solomon Islands. In the last decade the country has been promoting the country as an eco-tourism destination despite its many issues with the environment. Most tourists coming to Solomon Islands are nature enthusiasts and most of them are divers and bird watchers. The Tourism division of the Ministry of Culture and Tourism is the key agency responsible for the sector. The Tourism Authority is a para-statal entity assisting with tourism promotion in the sector. The sector has set up policies and guidelines which take account of environmental and a biodiversity consideration as its market niche depends very much on the quality of the environment and its biodiversity resources.

3.2 TOOLS AND PROCESSES FOR MAINSTREAMING AND INTEGRATING BIODIVERSITY ISSUES AND SUSTAINABLE USE

The mainstreaming of Biodiversity and sustainable use in Solomon Islands where these have been achieved or actions have been taken has been done through various tools and processes. The major ones of these are briefly described below.

a. ***Legislation*** – The national constitution, national laws, and provincial ordinances of the provinces provide avenues for mainstreaming of biodiversity. In fact many of the national legislation as explained earlier have included consideration of biodiversity and sustainable use. Many provincial ordinances also cater for some relevant biodiversity issues.

b. ***Policies, strategies and programmes*** – There have been many policies, strategies and programmes relating to biodiversity that have been implemented, or are currently being implemented. Some of these are dealt with in part 3.1.2

c. ***Budgetary processes/instruments*** – The formulation of budgets at various levels allows for consideration of biodiversity issues. Budgets would need to consider income from biodiversity based income and sustainable use. The budget processes itself also allows biodiversity based or linked agencies to make submissions for their own programmes in biodiversity issues.

d. ***National Planning procedures*** – planning procedures for identification of national priorities, programmes or projects and their formulation and implementation requires various appraisal processes that takes into account biodiversity considerations.

e. ***Environment Impact Assessment requirements and procedures*** – The requirements of EIA under the Environment Act now allows environment and biodiversity to be considered in a range of development activities that have been provided in a schedule to the Act as 'prescribed development'. Due to the requirements of the EIA approval under the Environment Act, other statutory requirements have now taken on board, the EIA approval which is termed a 'Development Consent' as condition to their own statutory approval.

f. ***Monitoring and evaluation requirements*** – Many programmes, projects and routine activities of many government agencies, NGOs, donor agencies and private sector groups require monitoring and evaluation phases which allows the process to take into account consideration and mainstreaming of biodiversity and sustainable use.

g. ***Development approvals*** – There are various types of development approvals which are required under various legislations including the Environment Act which gives a 'Development Consent' when a development is approved following the submission of an EIA report. Other statutory authorities have increasingly taken on board environment and biodiversity issues in their approvals processes.

h. ***Project documentation*** – The development of projects and programmes in the first place needs to take into account biodiversity issues even if the programmes and projects are not centered on biodiversity issues. Well designed projects or programmes have mainstreamed biodiversity issues into their design.

i. ***Direct project implementation*** – In the implementation of policies, strategies and statutory functions, opportunities arise for the consideration of biodiversity issues in the process.

j. ***Guidelines for implementation*** – In many cases, there have been guidelines for implementation especially in large multilateral programmes that provide further opportunities for mainstreaming of biodiversity issues on site.

k. ***Education and awareness*** – The mainstreaming in school curriculum and public media awareness are also examples of tools that assist in mainstreaming. In fact the raising of awareness allows and influences others to mainstream biodiversity issues in their programme activities.

l. ***Training in tertiary institutions with environment and biodiversity graduate qualifications*** – The simple act of training and graduating with biodiversity related qualification is mainstreaming into the sources of human resources.

m. ***Partnerships*** with many stakeholders especially with NGOs and Civil society groups and resources owners in the formulation and implementation of projects and programmes allow real opportunities into mainstreaming biodiversity issues on site.

n. ***Establishment of PAs*** – The establishment of protected or conservation areas are a real and tangible example of the mainstreaming of biodiversity issues into development and livelihood of peoples and communities.

o. ***Committees and Advisory bodies*** – Many committees and advisory bodies deal with biodiversity and related issues. These include the advisory committee under the Environment Act, the Minerals Board under the Mines and Minerals Act, the Town and Country planning board, the Tourism board, and Fisheries Advisory Council.

p. ***GIS*** – There is an increase in the number of organizations that have developed some form of GIS in their organization. This system naturally is based on biodiversity considerations and assists in the further mainstreaming of biodiversity issues in the application of the systems.

q. ***Land use plans*** – There seems to have been no land use plans formulated within the last few decades in the Solomon Islands. Where there are land use plans, however, they would take into account of biodiversity and sustainable use considerations for such a plan to work.

3.3 USE OF ECOSYSTEM APPROACH IN MAINSTREAMING OF BIODIVERSITY

The use of the ecosystem approach as a management approach in biodiversity or sustainable use programmes in a routine or systematic manner has not been seen much in Solomon Islands at a national level or even at departmental or provincial levels. Much of the examples of mainstreaming reported in this report however have taken into account and are based on many elements of the ecosystem approach.

Many activities undertaken these days have considered all elements that are part of the ecosystem approach and have thus integrated much of the requirements of the approach. Many relevant programmes have been funded by donors and other bilateral partners including NGOs whose requirements actually form parts or elements of the ecosystem approach and have thus met all requirements of the ecosystem approach by the time they are implemented on the ground in Solomon Islands. Many people now involved in many of the activities being implemented have become members of the new generation of people who have become familiar with the requirements or elements of the ecosystem approach and have hence assisted in integrating essential elements of the approach in many of the activities where mainstreaming has shown to be working.

3.4 USE OF EIA IN MAINSTREAMING

The use of EIA in mainstreaming has been one of the most effective procedures thus far due to the legal requirements under the Environment Act for 'prescribed development' which covers most major developments to undergo some form of EIA. The Environment Act requires that 'prescribed development' activities undergo some form of EIA and developers have to carry out an assessment which include on site investigations to produce the required EIA report. The reports which are submitted follow established guidelines laid down in the regulations to the act and usually require an environmental management plan which contains mitigation measures for identified potential impacts.

The Mines and Mineral Act also require an EIA for development of mines. This allows mineral developers to mainstream biodiversity considerations into their activities. Other agencies have now required similar reports or the same EIA reports in their own approval process due to the legal requirements of the Environment Act. As the 'prescribed development' under the Environment Act covers most development activities, most developers would now be able to

carry out EIA and would thus do more consideration of the biodiversity issues in their development activities than they do in the past.

It is a general experience from Solomon Islands that developers are now willing to adhere to EIA requirements because it helps them predict possible future scenarios in their development and if their development activities is going to be viable or not. It also helps them to know in advance what they should do in times of errors or disasters and does give them a whole lot of other economic and social benefits. Many now realize that doing EIA is good management practice and helps them to think more about the sustainability of their development activities than they do before.

CHAPTER IV - CONCLUSIONS: PROGRESS TOWARDS THE 2010 TARGET AND IMPLEMENTATION OF THE STRATEGIC PLAN

4.1 PROGRESS TOWARDS 2010 TARGETS

Goals and targets		
Focal area: Protect the components of biodiversity		
Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes		
Targets	***Progress***	***Relevant Priority Action included in NBSAP [Indicator]***
Target 1.1: At least 10% of each of the world's ecological regions effectively conserved.	Solomon Islands now has 113 known protected and managed areas which comprises both terrestrial and marine areas (see table 5). Most of these areas are not yet legally protected but efforts continue to get them at that stage. Some of the known protected and managed terrestrial areas already accounted for about 5.34% (1521.18 km^2) of the country's total land area. As spatial data on the all known managed marine areas are not available, this figure could otherwise increase. More than 20 sites are of known management interest and efforts will continue to develop and implement programmes for these areas. Most of these are large terrestrial areas. Apart from these areas, there are 33 identified wetland sites. Efforts are ongoing on some of these sites. More efforts will certainly increase the number of identified wetland sites. Some of the known protected and managed sites are Queen Elizabeth Park, Arnavon Islands Marine Conservation Area, East Rennel World Heritage Site (370 km^2), Makira Highlands Conservation Area (630 km^2), Komarindi Catchment Area (193 km^2)- an agreement is current for this area, Simbo Megapode Community Management Area (7.25 km^2,	23. Develop a new National Management Framework for a protected area system which accommodates different models of protection and management including community based management approaches and traditional tambu areas. 24. Implementation of the National Management Framework. 26. Develop standardized monitoring techniques for PA sites. 27. Undertake regular monitoring (standardizing) of PA sites.

	Kolombangara Montane Forest (200 km^2) and the Tetepari Island Conservation Area (110 km^2). The NBSAP has included the mainstreaming and development of protected areas as major themes and proposed certain actions to achieve established objectives for the identified thematic areas. One of the most important developments is the enactment of the Protected Areas Act 2010. Regulations are nearing completion to start implementation of the Act.	
Target 1.2: Areas of particular importance to biodiversity protected	Known protected and managed sites total up to 113 sites. Some known terrestrial areas already total up to 1521.18 km^2 which make up 5.34% of total land area. Please refer to above target 1.1 and table 5. Information on areas covered by the seascapes or Marine managed areas as listed in table 5 are still not available. Since the number of managed marine areas is higher than terrestrial areas, the total areas thus protected or should increase even further.	28. Collaborate with PoWPA partners to map protected areas, migratory corridors and important breeding habitats in the country
Goal 2. Promote the conservation of species diversity		
Target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups.	**Plants –** A number of rare species of timber trees are not allowed to be exported as logs, under the Forest Resources and Timber Utilization Act. These include *Pterocarpus indicus*, *intsia bijuga*, *vitex coffasus*, *Xanstemon sp* and mangroves. Various other species are not allowed to be exported or are subjected to strict quota under the Wildlife Protection and Management Act. **Marine turtles –** Export of shells banned. Management measures are in place under Fisheries law and site specific management plans. The most significant Hawksbill turtle sanctuary in	8. Develop plans for the sustainable harvesting and management and where necessary, protection of indigenous, unique, endemic and endangered species. 9. Identify capacity building areas needed to sustainably manage and monitor indigenous, unique, endemic and endangered species.

	the country and the South Pacific region, the Arnavon Islands is now a marine conservation area protected under a provincial ordinance. **Birds –** The enactment of the Wildlife Protection and Management Act 1998 and the accession of Solomon Islands to CITES has effectively reduced and ended the export of birds from the country. **Beeche-de-mer** – There is a current ban on harvest and export of beech-de-mer under fisheries law. Management of beech-de-mer is under the Fisheries Act **Mangroves** – Protected species under the Forest Resources and Utilization Act 1969 **Coral & shells** – Management measures included in the Fisheries Act and Wildlife Protection and Management Act. The accession by Solomon Islands to CITIES has also helped to control the export of corals Refer to table on section 2.3 on the progress/ implementation of NBSAP	
Target 2.2: Status of threatened species improved	Research work has continued and added to the improvement of the opportunity to reseed coral reefs with trochus, giant clam shells and sea cucumber. The previous forest genetic resources project had collected genetic materials on selected forest tree species which are of economic and social significance. Forest research is continuing efforts to collect wild seeds and for nurseries and introductions and replications to natural environments.	10. Develop a recovery program for threatened and endangered native species.

	Efforts to establish conservation areas have included the protection of threatened species as the purposes of such efforts. Many of the large conservation areas include threatened species of plants and animals. The marine conservation areas also include the protection of threatened species especially marine turtles (hawksbill and leatherback). The forest department has nursery facilities that are used in propagating a number of selected forest species some of which are threatened. The World fish centre also has research facilities that are aimed at threatened marine species such as sea cucumber and giant clam shells. An NGO (Earth Island institute) and local communities are working together to reduce the traditional capture of dolphins and discourage the export the species from their communities. In terms of agricultural diversity, Solomon Islands has collected and deposited accessions in the regional germplasm banks within the Pacific Commission. Some NGOs are now encouraging communities to conserve food plant varieties. Programmes are targeting in situ conservation of selected species towards this endeavor.	
Goal 3. Promote the conservation of genetic diversity		
Target 3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local	Following the ethnic crisis of 2000-2003, a number of institutions responsible for work in this area have been decapitated. Many of the work on conservation area development both terrestrial and marine are aimed at such goals as explained in 2.2 above. Otherwise the work by Kastom Garden	53. Carry out national assessment on risks and lost opportunities on genetic material. 54. Establish an interagency network to collate existing and new genetic data. 55. Create a National database and storage for genetic resources

knowledge maintained.	and the Farmers Network is a significant effort in food plants and crops. This network has collected many useful plants and food plants for sharing amongst farmers which help to conserve plants and crop varieties. Some breeding work on livestock, mostly poultry and piggery are being done by a Taiwan technical mission. This groups also concentrates on food plants for distribution to farmers. The forest genetic project referred to earlier has been one such effort in the forestry sector. Otherwise the forestry sector also has trials and providence plots through the country for some its important harvested species including exotic species. Apart from all this, not much work has been done at the genetic level. In terms of traditional knowledge some current works have involved the collection of traditional knowledge. Some works have been done on useful plants based on traditional knowledge which had resulted in production of reference texts. Some work has also been produced about food plants for an island but is yet to be published. In general though, traditional knowledge is slowly disappearing.	discovered (Gene Bank for useful flora and fauna). 56. Recruit officers and conduct training program for quarantine, and personnel from other relevant agencies, to implement the regulatory framework
Promote sustainable use		
Goal 4. Promote sustainable use and consumption.		
Target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity.	In the fisheries sector, the acts referred to earlier include management control measures which include species allowed for harvest for export, banning of harvest of certain species during spawning and mating periods, limits on sizes of selected species subjected to domestic and external demands, limits of certain capture fisheries technologies, limits (quotas) on amounts of species	17. Produce a list of non edible and non commercial species in consultation with relevant Ministries (MF, MAL).

	harvested, requiring licenses for export of harvested species, limits to fishing areas and so forth. There is a current ban on various products including sea cucumber and live fish. The previous Solomon Taiyo fishing operation has undergone various assessments to meet criteria for export to the EU for its products. These include stringent sustainable management conditions to be met in the whole operation from harvesting to processing. In the forestry sector, a logging code has already been adopted and implemented; and various conditions have been adopted for the industry to adhere to under the Forestry Resources and Timber Utilization Act. The said Act also included various management control measures to be adhered to by all in the Forest and Timber industry. These include the requirement of licenses for harvest, limits to machines used, altitudinal limits to areas under harvest, limits to areas near rivers and streams, only selected species allowed for harvest and export and ban on others selected species limits, and requirement for approval of harvesting plan before operations begin. One of the largest forestry plantations has been approved under the Forestry stewardship council for its operation. Under the Wildlife Management and Protection Act, many of the species that can be allowed for export have been subjected quotas or can be subjected quotas depending on the CITIES conditions. The requirement for implementation of CITIES requirements as conditions of export at the national level has also assist in consideration of sustainable management principles.	

	Under the Environment Act and regulations, various development activities are required to undergo some form of EIA which then allowed consideration of sustainable development principles in development activities. One of the main aims of the Act as well many of the new Acts is to promote sustainable use and consumption. Site specific management plans covering conservation areas are promoting sustainable use and consumption and have received wide support from the local communities and the resource owners. In the tourism sector, Solomon Islands promote and market an eco-tourism destination which depends on a good quality environment and promoting sustainable use. Best practice standards have been promoted in the development of this industry. In the agriculture sector, there are various programmes that promote sustainable use and consumption. It is in this sector that the promotion of sustainable use and consumption becomes critical. The sustainable management of land that is used for agriculture is one that has been promoted for a long time. The Ministry of Agriculture is currently implementing the Sustainable Land Management project under the UNCCD which covers various aspects of the sustainable use of land.	
Target 4.2. Unsustainable consumption, of biological resources, or that impact upon biodiversity, reduced.	In the 1990s and 2000s a number of new acts have been promulgated by parliament which promotes sustainable development principles. These include the Fisheries act, Environment Act, shipping act, Mines	

	and Minerals Act, Wildlife Management and Protection Act and Protected Areas Act. Under the Environment Act, many development activities are categorized as prescribed developments and require some forms of EIA which examines potential impacts of development activities and proposes ways of mitigating the potential impacts. As already referred to earlier many of the new acts have new management measures that control resources harvesting and implements limits on harvesting methods. Developments in sensitive areas are well considered under the EIA process. Harvesting of selected species are managed under the fisheries act. Size limits are adopted for a variety of species including trochus, cray fish and lobsters, coconut crab, and beech-de-mer. Management measures also include limits on harvesting seasons and capture fisheries technologies used in harvesting.	
Target 4.3: No species of wild flora or fauna endangered by international trade.	When Solomon Islands became a party to CITES, all requirements of CITES determined export of wildlife species from Solomon Islands. Thus far export of wildlife species from Solomon Islands has been greatly reduced and has diminished for many species which were exported prior to the accession to CITES. The Wildlife Management and Protection Act has schedules which controls the export and exploitation of a number of wildlife species. Many endangered, rare and endemic species are either banned from export or are under some form of management under schedules to the Act. Some marine species are also controlled	

	under Fisheries act such as marine turtles and mammals, crocodiles, corals and marine shells. A number of forestry species are already banned from export under the Forestry Resources and Timber Utilization Act.	
Address threats to biodiversity		
Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.		
Target 5.1. Rate of loss and degradation of natural habitats decreased.	The EIA requirement under the Environment Act has been one of the key tools in efforts to achieve such objectives. In the forestry sector the adoption of logging code has also been an effort towards such objectives. The efforts in the establishment of conservation areas though out the country have also been a tangible effort towards arresting the loss of natural habitats. The enactment of the new and first Protected Areas Act 2010 is one of the most significant efforts that is hoped will assist the country address the loss and degradation of natural habitats. The Fisheries Act also includes requirements for community conservation of marine areas that will assist the conservation and management of marine areas. A number of projects are being implemented towards this objective. These include all the conservation areas projects and programmes, projects currently implemented under the GEF Small Grants Scheme, the Sustainable Land Management project, and the Coral Triangle Initiative. The recent Ridge to Reefs Conservation study (Kool, Jonathan et al) analysed various data domains to identify priority areas for conservation	

	action under certain scenarios. These areas are western Malaita, eastern Guadalcanal and central Choiseul (for areas where it is intended that conflict is minimized but with potential development activities); western Guadalcanal and southern Makira (for areas of greatest value but with imminent threats). Under both scenarios described above, areas in Choiseul, and Central provinces, Northern Isabel, Marovo lagoon, Tetepari and Rendova are areas of concerns.	
Goal 6. Control threats from invasive alien species		
Target 6.1. Pathways for major potential alien invasive species controlled.	Responsible government authorities have improved their efforts in strengthening their capacities to address potential alien invasive species. These include quarantine and custom departments. The Agriculture Quarantine Act has been the main piece of legislation governing quarantine issues. The Customs Act is also the other major Act. The EIA process under the Environment Act is an avenue that allows consideration of invasive species issues such as providing mitigation measures on control of potential invasive alien species. Solomon Islands has participated in invasive species training and networking programmes under regional institutions and is supporting regional initiatives addressing invasive alien species. It is also party to the international regimes governing related issues such as in plant protection and continues its efforts to implement its international obligations.	40. Constitute a national invasive species committee to draw up a National Invasive Species Strategic Plan, and to monitor the implementation of the Strategic Plan. 41. Liaise with SPREP (PIILN), UA and other affiliates to strengthen invasive species planning and management by responsible Ministries. 42. Participate in regional invasive species programs.
Target 6. 2. Management plans in place for major alien species that	There is no national management plan on invasive species. Site specific management plans for conservation areas include management of invasive	47. Review available information on invasive species and their impacts in the Solomon Islands, identify priority threats, species and actions to manage

threaten ecosystems, habitats or species.	species within those areas. Solomon Islands participates in the regional invasive species programme and will do its best to implement the regional invasive species strategy. The major issue at present is the recent discovery of the giant African snail in the capital Honiara which is thought to have arrive through logging machines most probably within the last year and may have been already been introduced to other areas of the country. Efforts to control the alien invasive species are continuing.	them which will be implemented during the next five years. 48. Design management procedures for selecting management goals for each priority species (including prevention of spread, control and where possible eradication). 49. Design and implement priority management projects.
Goal 7. Address challenges to biodiversity from climate change, and pollution		
Target 7.1. Maintain and enhance resilience of the components of biodiversity to adapt to climate change.	Solomon Islands has formulated its National Adaptation Programme of Action (NAPA) of climate change and has begun efforts to implement the various priorities identified. It has also finalized its second national communication to the UNFCC. The NBSAP and its National Environmental Capacity Development Action Plan (NECDP) have also been completed. All these plans address various aspects of biodiversity and climate change. The NAPA assessed the following sectors as being key areas subjected to effects of climate change: Agriculture, Water resources, Human health, Human settlements, Energy, Fisheries and marine resources, Mining, Infrastructure development Education, Tourism, Trade and Industry, Forestry, and Waste management. The following priority areas have been identified in the NAPA for further implementation : • Mainstreaming the impact of and enhancing resilience to, climate change an sea level rise on agriculture and food security, water supply and sanitation, Human settlement, human health	91. Build capacity of stakeholders including resource owners at local and national level to address climate change issues in biodiversity conservation. 100. Conduct scientific research on the impact of climate change on both terrestrial and marine biodiversity.

	and Education, awareness and information. • Climate change adaptation on low lying and artificially build up islands in Malaita and Temotu provinces • Waste management • Coastal protection • Fisheries and marine resources • Infrastructure development and tourism The first priority has already been developed to a full proposal and is now funded under the climate change fund and is being implemented. Solomon Islands also has its country programme strategy under the GEF Small Grants Scheme and has Biodiversity protection, Climate Change Adaptation and Mitigation and Land Management as its thematic areas of focus. Relevant projects are being implemented. Under the second national communication, a vulnerability and adaptation assessment was also carried out and identified the need to address biodiversity issues affected by climate change. A number of actions were further recommended under the VA study. The CTI programme is also focusing its effort on issues of biodiversity and climate change and is currently carrying out a V/A study to assist it formulate its strategy on climate change effects especially on the effects on marine biodiversity.	
Target 7.2. Reduce pollution and its impacts on biodiversity.	Pollution is not a large and significant problem in Solomon Islands but are localized in some highly populated areas such as in the capital where sewage marine terminals lined the	102. Develop legislation for the management of hazardous materials and contaminated sites. 103. Enforce by-laws or ordinances

	coastal areas. Sediment pollution also occurs in areas where there are industrial loggings. The adoption of the logging code of conduct is aimed reducing pollution from logging. The establishment of the EIA requirements in the Environment Act is also an effort to address pollution problems from potential pollution from development activities.	relating to littering and urban waste management.
Maintain goods and services from biodiversity to support human well-being		
Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods		
Target 8.1. Capacity of ecosystems to deliver goods and services maintained.	All efforts in conservation area development in the country which has accelerated especially in the marine areas are to maintain and improve ecosystems to deliver goods and services. The resilience of ecosystems is usually one of the most important objectives of such efforts. Most areas of the country are traditionally owned and the land tenure systems that exist in the traditional societies are key to maintaining existing ecosystems in societies that have strong land and marine tenure systems. The land and marine tenure systems have been useful in maintaining ecosystems in most of the traditionally owned areas. Many lowland forested areas have been subjected to industrial logging and may have been compromised. In the near shore marine environment, areas of high population have been over exploited making it difficult for those systems to recover quickly. The impacts of natural disasters which are common in Solomon Islands, and climate change and variability could be making this objective a real challenge for Solomon Islands to achieve and maintain.	
Target 8.2. Biological resources that	Sustainable fishing practices and capture fisheries technology are encouraged in local communities.	

support sustainable livelihoods, local food security and health care, especially of poor people maintained.	Resources management plans are developed in areas where there are conservation areas and target resources use that promote sustainable use principles. Many NGOs working in local communities are promoting sustainable use through development of conservation areas and related resources management plans. Locally Managed Marine areas (LMMA) are such examples where sustainable uses are most important. The Kastom garden group promotes food security in areas where there are poor communities and there is 'extreme living'. These areas are areas where there are observed hardships and local communities do not have easy access to essential services. The Kastom garden group share essential seeds for many farmers who are members of the network throughout the country. The group also establishes seeds banks for its members for sharing and conservating plant varieties. NGOs have many programmes that focus on food security issues and maintaining ecosystems in areas that are not easily accessible by local authorities. Some commercial establishments have linked up with local communities to support them to supply resources that help both the commercial interest and the local communities.	

Protect traditional knowledge, innovations and practices		
Goal 9 Maintain socio-cultural diversity of indigenous and local communities		
Target 9.1. Protect traditional knowledge, innovations and practices.	An IPR bill has been drafted with assistance from a regional institution. This bill addresses issues of traditional knowledge and practices and will hopefully protect such valuable knowledge. A number of existing programme are recording essential traditional knowledge in the areas where there are local communities who have extensive local and traditional knowledge. The Solomon Islands national museum has the function of recording traditional knowledge and management systems in the country. The proposal by SPREP for regional framework for Access Benefit Sharing will also be useful for this target. Some local institutions are currently involved in raising awareness about the issue.	59. Develop regulations within appropriate legislation to protect, control access and use of genetic material and traditional knowledge of those materials (patenting).
Target 9.2. Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit sharing.	The IPR bill referred to in 9.1 includes some rights to owners of traditional knowledge of indigenous local communities who make up the population of the country. Otherwise these rights are now covered in the new international treaty and Solomon Islands should now move towards strengthening its domestic regime on this issue through this new treaty and other relevant existing international treaties. One of the new initiatives of the current government is its new policy on land reform which is being refined into a national policy strategy and will hopefully assist the country in developing new policies and legislation which can address such issues as rights	

	of indigenous communities.	
Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources		
Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources		
Target 10.1. All access to genetic resources is in line with the Convention on Biological Diversity and its relevant provisions.	Solomon Islands is already a party to the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGFRA) and can make use of such facilities to meet CBD objectives Material Transfer Agreements exists for accessions managed under the regional germplasm bank in the Secretariat of the Pacific Community which covers food and agriculture resources. This MTA can be used for other materials outside of food and agriculture resources such as in forestry and marine resources. Some similar arrangements had been with some other external institutions in relation to some non timber materials under forestry. The MTA currently being used is relevant to the objectives of the CBD and the International Treaty on Plant Genetic Resources for Food and Agriculture. The issue is now covered in the new Protected Areas Act 2010. Use of genetic resources and bio-prospecting are covered and will be further addressed in the regulations to the Act which are currently being developed.	52. Recruit/engage a lawyer or economist to assist in the design and implementation of the framework for ABS of genetic resources. 53. Carry out national assessment on risks and lost opportunities on genetic material. 54. Establish an interagency network to collate existing and new genetic data. 55. Create a National database and storage for genetic resources discovered (Gene Bank for useful flora and fauna). 56. Recruit officers and conduct training program for quarantine, and personnel from other relevant agencies, to implement the regulatory framework.

Target 10.2. Benefits arising from the commercial and other utilization of genetic resources shared in a fair and equitable way with the countries providing such resources in line with the Convention on Biological Diversity and its relevant provisions	The uses of accessions managed under the regional germplasm bank are covered under relevant MTA and MOU. The accessions can be shared by the countries within the region and other interested parties. A private overseas commercial entity has had some arrangement with a local community to supply resources for its medicinal use.	57. Develop set guidelines or criteria to effectively carry out benefit sharing. 58. Partner agencies dealing with genetic resources to collaborate by sharing information.
Ensure provision of adequate resources		
Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention		
Target 11.1. New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.	Solomon Islands benefited from GEF funding received through Implementing Agencies for a number of biodiversity related projects through the Implementing Agencies. These include government entities, NGOs, community groups and the private sector. Solomon Islands also receive funding from other bilateral and multilateral partners as well as private foundations. More still needs to be done though.	60. Create new, and strengthen existing, relationships with relevant regional, financial institutions and international stakeholders in partnership with SIG to solicit funds for the implementation of NBSAP. 61. Establish a financial mechanism that will enable effective dissemination of funds.
Target 11.2. Technology is transferred to developing country Parties, to allow for the effective implementation	The transfer of knowledge has been mainly through adhoc arrangements under various projects but has not been at an effective level. A number of the projects implemented by NGOs have been focusing on assessment techniques and methods. More should be done to assist statutory and permanent institutions where relevant technologies can be effectively	71. Strengthen/maintain existing capacity building institutions/programmes.

of their commitments under the Convention, in accordance with its Article 20, paragraph 4.	transferred to a wider audience than is currently the case. Many of the technology transferred has been in the field of land management, forestry, agriculture, fisheries, geology and conservation management. Solomon Islands has a number of technical cooperation agreements with some countries but has not made full use of such cooperative agreements to its advantage due mostly to lack of resources and capacity.	

4.2 TARGETS FOR THE GLOBAL STRATEGY FOR PLANT CONSERVATION

Targets	Current Status/comments
a) *Understanding and documenting plant diversity:*	
Target 1: A widely accessible working list of known plant species, as a step towards a complete world flora.	The national herbarium has re-started its normal functions in recent years following the recent ethnic crisis when all its collections were shifted to Fiji. More work needs to be done to complete botanical descriptions of all collected specimens. Some published work in the past includes the Useful plants of Solomon Islands. Some major work had also covered palms and orchids. Botanical practitioners do use working lists for field work which need to be collated to assist in these efforts. Henderson and Hancock produced a list of more than 3200 plant species which is already available in the public domain through a book published on Useful Plants of Solomon Islands.
Target 2: A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels.	The status of some species and plant groups are known but more work needs to be done in this area for Solomon Islands, especially for species subjected to commercial exploitation and other intensive local uses.
Target 3: Development of models with protocols for plant conservation and sustainable use, based on research and practical experience.	Not much is done in this area. The NGO Kastom Garden is actively doing some work with food plants and crops. The forestry department has some ex situ trials for some species in its research plots but not much is done as well in terms of ex-situ programmes, especially for indigenous species. Not much is also known of the work of some of the big industry players such as Kolombangara Forest Plantation Limited (KFPL) and Eagon

	Resources who run large forest plantations that were previously owned by the government.
b) *Conserving plant diversity*:	
Target 4: At least 10% of each of the world's ecological regions effectively conserved.	Many areas of national and international significance have been identified for potential conservation in Solomon Islands and efforts are continuing to conserve these areas. Even though there have been difficulties in getting the relevant support required to conserve many of these areas in the past, new efforts have now shown fruition with the development of many key large areas such Aranavon Islands, Tetepari Islands, Makira Highlands, East Rennel World Heritage Site and the Kolombangara Montane Forest Summit. There are also many small marine conservation areas throughout the country. Most of the areas still need to undergo legal processing to be effectively conserved. As mentioned in earlier sections (Chapter 4 Target 1.1 and 1.2) of this report, Solomon Islands now has 113 known protected and managed sites through the country, many of which are still being developed and are yet to be legally established. Known areas of the large areas referred to already totaled up to 1,521.18km^2 and make up 5.34% of the total land area of the country.
Target 5: Protection of 50% of the most important areas for plant diversity assured.	The large known protected and managed areas referred in this report are terrestrial areas and cover large forest areas. Total number of plant species covered by the areas are still to be determined but should be significant. Solomon Islands need to develop other representative ecosystems to protected status in the country to cover as much diversity of plants as possible.
Target 6: At least 30% of production lands managed consistent with the conservation of plant diversity	Most production lands have been converted to high intensive agriculture (coconut, cocoa, oil palm) or forestry plantations. Other areas are used for subsistence garden activities which in highly populated areas are quite intensive. Many of the areas that were identified as agricultural opportunity areas have not been used for high intensive activities and could provide opportunities for such management requirements.
Target 7: 60% of the world's threatened species conserved *in*	The large known protected or managed areas reported in this report are natural areas of native or local indigenous species and

situ.	should cover many species that are threatened in Solomon Islands. The statuses of the many species in most of these areas are still to be determined and would require extensive additional work in the areas to enable understanding of threatened species. Species that are not within areas that are protected or managed could potentially be lost due to industrial logging and other agricultural developments undertakings.
Target 8: 60% of threatened plant species in accessible *ex-situ* collections, preferably in the country of origin and 10% of them included in recovery and restoration programmes.	NGOs dealing with food security issues have increased efforts in ex-situ collection for sharing with local communities. A regional forestry project has made collection of indigenous species and has made some efforts to develop ex-situ collections. Ex-situ collections of specimens from Solomon Islands are there in other countries but are currently not well documented and are probably not known to many authorities as many would have been collected prior to the CBD era.
Target 9: 70% of the genetic diversity of crops and other major socio-economically valuable plant species conserved and associated indigenous and local knowledge maintained.	Most collections of food or agricultural crops were carried out in the past and not much has been done since the torching of the agricultural research facility during the ethnic tension. Recent efforts by some groups have been adhoc and have not been systematic. Nevertheless, the recent efforts have at least increased the species and varieties that have been subjected to such conservation exercises. There is probably a high number of varieties already lost due to the slowdown of activities on this issue. Much of this problem has been due to lack of awareness amongst subsistence farmers and other custodians of genetic resources.
Target 10: Management plans in place of at least 100 major alien species that threaten pants, plant communicates and associated habitats and ecosystems.	There are no management plans for any alien invasive species. Some site specific management plans for conservation areas address alien invasive species within their localities and surrounding areas. The only actions at present are to do with quarantine work.
c) *Using plant diversity sustainably:*	
Target 11: No species of wild flora endangered by international trade	The Wildlife Management and Protection Act 1998 enabled Solomon Islands to accede to CITIES which in turn enabled Solomon Islands to fully adhere to CITIES requirements and reduced international trade in wild flora to almost nothing in the last few years.

Target 12: 30% of plant-based products derived from sources that are sustainably managed	With the exception of industrial logging, there is not much large industrial uses of plant based products in Solomon Islands. All logs are exported to overseas buyers. Very little remains. This industry is also the source of much controversy in the country. There are many small scale use of a wide variety of plants for many purposes. Most of these small activities occur at the subsistence level where plant sources are under traditional management. The large agriculture products have been under long term management. These are copra, oil palm and cocoa. Added to these are chilli, vanilla, and kava. There are many plant products that are used for handicrafts, furniture, food, buildings, medicines etc especially at the subsistence level.
Target 13: The decline of plant resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security and health care, halted.	Plant resources or biodiversity forms a major part of people's livelihood in Solomon Islands. As the majority (85%) of the population are in the rural areas and live a subsistence lifestyle, gardens, and use of plant resources play a major part of their daily living. Whatever they need for cash comes from the biodiversity resources. Plant resources may be in decline due to high population pressure and over exploitation. Local knowledge and practices is still strong but needs to be recorded somehow urgently for future generations. Local communities and subsistence communities in Solomon Islands are quite resilient as experiences have shown due to their dependence on biodiversity resources. Their knowledge about local foods, traditional practices, traditional medicine etc is still there with them but urgent action needs to be taken to record them or pass them on to new generations.
d) *Promoting education and awareness about plant diversity*	
Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, educational and public awareness programmes.	The level of awareness most environmental and biodiversity issues has increased significantly at all levels of society. This has shown itself in the level of support that many activities now receive from various levels of government and communities. Programmes on public awareness and education have now become part of the routine activities of both government and NGOs. Many NGOs and government departments have inbuilt awareness and education programmes in their many programmes and projects that they implement. Many awareness

	materials are now seen in the form of posters, brochures and newspaper articles. Solomon Islands has also observe many biodiversity or environmental events which has helped raised awareness. Many of these events are international observed such as biodiversity day but many are regionally organized such as Year of the Sea Turtles, Year of the Dugon etc. There is now a new course on environment and conservation as well in the local college which will raise awareness amongst our young people.
e) ***Building capacity for the conservation of plant diversity***	
Target 15: The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this strategy.	Solomon Islands has no training facilities to train its human resources in plant conservation. In fact there is a critical shortage of trained personnel this area. A few have gone on to train in other external institutions but this has been on an adhoc basis and needs to be improved. In-service and pre-service training continues but this field has not attracted much training as well.
Target16: Networks for plants conservation activities established or strengthened at national, regional and international levels.	Some network has been established in the past through SPC at the regional level. National practitioners have their own links through their own organizations. Networks on alien invasive species have been set up through the SPREP involving individual exerts, organizations, academic institutions and government agencies.

Appendix I - Information concerning reporting Party

Reporting Party

Contracting Party	SOLOMON ISLANDS
NATIONAL FOCAL POINT	
Full name of the institution	**ENVIRONMENT AND CONSERVATION DIVISION**
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Name and title of contact officer	
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SUBMISSION	
Signature of officer responsible for submitting national report	**Joe Horokou**
Date of submission	**25 July 2011**

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