MINISTRY OF FOREST & RESEARCH

SOLOMON ISLANDS GOVERNMENT

STATE OF FOREST GENETIC RESOURCES IN THE SOLOMON ISLANDS




Photos: Small scale holder plantation, EUCD seed plot at Poitete, KFPL Nursery.

January 1, 2012

Cover Photos:

- 4 years old *SWIM* @Tetere prison farm(Guadalcanal)
- 4 years old Teak (Guadalcanal)
- Plantation harvest (KFPL)

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January 1, 2012

SOLOMON ISLANDS COUNTRY REPORT

ON THE

STATE OF FOREST GENETIC RESOURCES

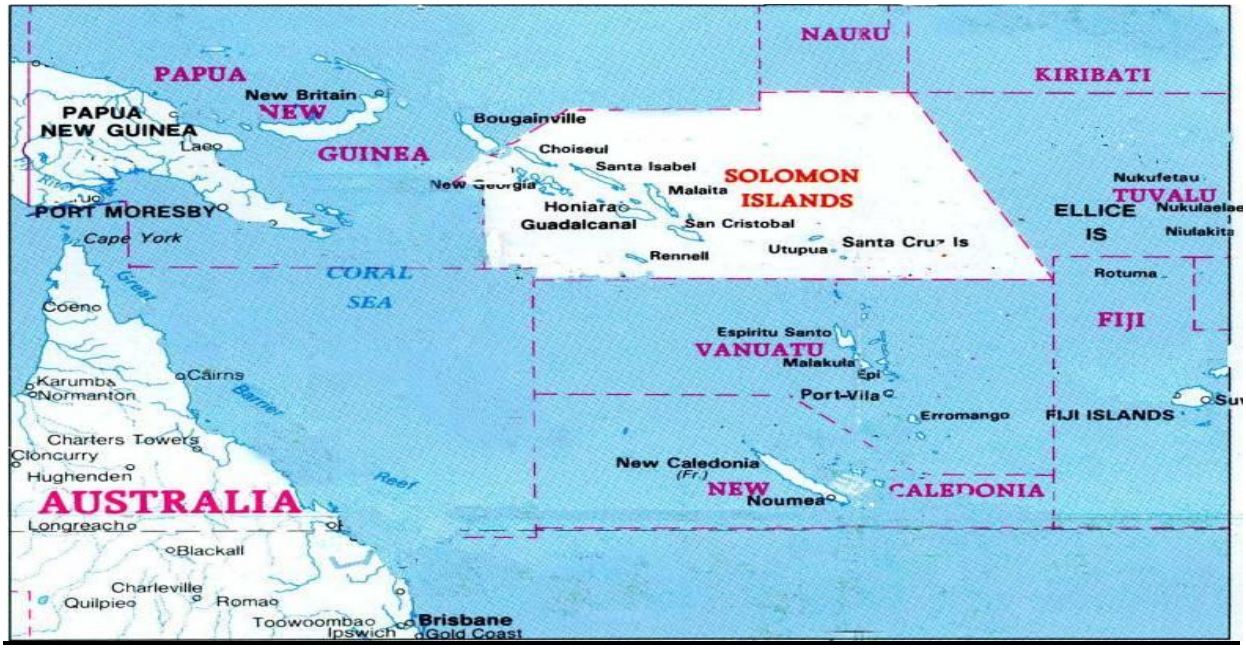
Solomon Islands Government

June 2012

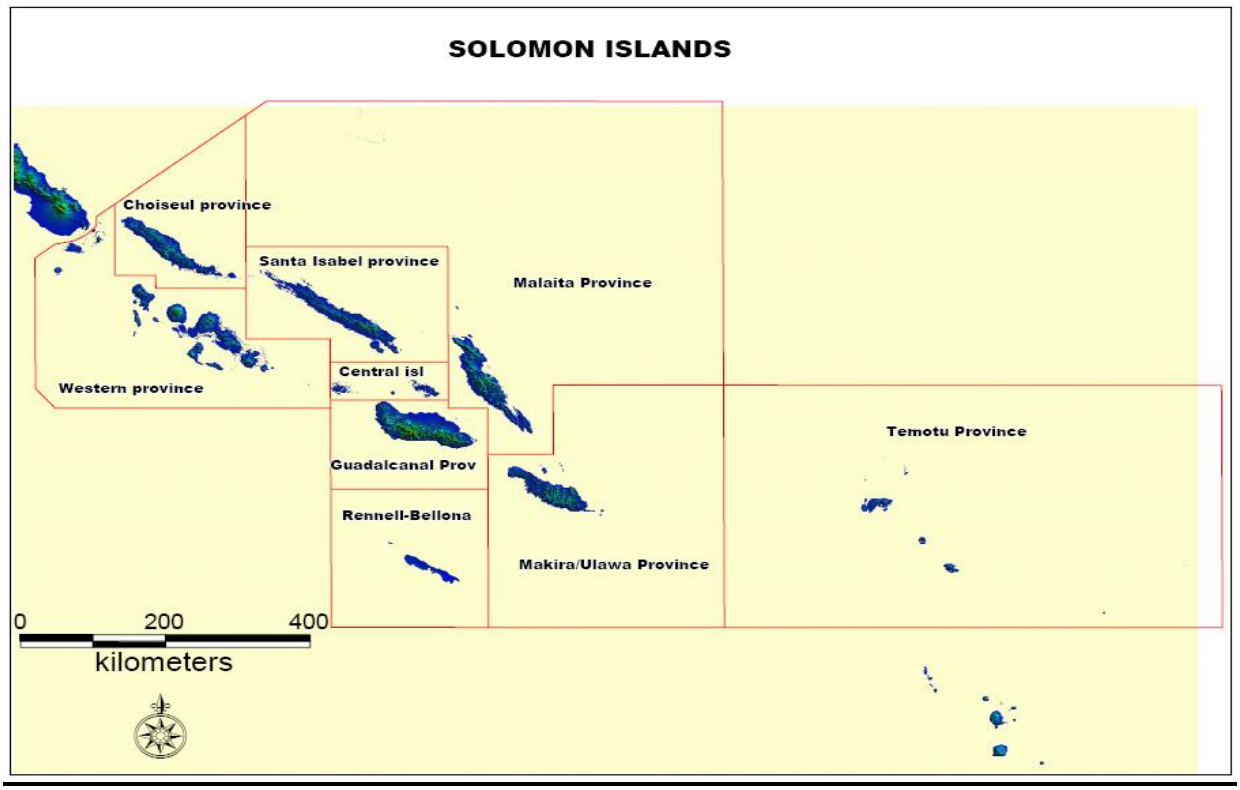
MINISTRY OF FOREST AND RESEARCH

January 1, 2012

MAP OF SOLOMON ISLANDS



Provinces of Solomon Islands



ACKNOWLEDGEMENT

The writing of this report has been done in response to the recommendation of the 12th session on the commission on Genetic Resources. As such, the author is grateful to acknowledge the following stakeholders and the Ministry of Forest and Research for the documents that were used as the literature to this report that contributed to the successful compilation of this updated State of Forest Genetics Report.

This report was based on information drawn from relevant sources from national reports, annual reports, corporate plans and organizational programs. Reports from the Ministry of Forest and Research, and the Ministry of Environment, Conservation and Meteorology, have contributed significantly to this report. Many thanks have been rendered specifically, to people who contributed personally as the Heads of Divisions (MoF&R), Chief Information Officer (MAL), Deputy Director (MECM), and the Chief Officer-Economic and Productive Sector (MDPAC).

The Financial support provided by FAO for the preparation of this report is also acknowledged with thanks as it enables logistic movements to gather data from other stakeholders and facilitation of the whole report.

To individual Non-Government stake holders who have contributed extensively to the original information and the draft review such as; Forest manager (KFPL), program officer (NRDF), program officer (ACIAR), SPC officers especially to Mr. Basil Gua and Mr. Gideon Bouro, program officer Kastom gaden association, Live and Learn, Nature conservancy and Tetepare Descendants association, my acknowledgement has been extended to you as well.

Particular thanks are due to colleagues in the Ministry of Forest and Research who have assisted in soliciting and processing of information and in particular Mr. Terence Titiulu and Mr. Philip Zekele for many helpful comments during the draft report review and to the Permanent secretary of the Ministry of Forest and Research Mr. Ronald Unusi for providing additional funds to print draft copies for wider distribution.

Finally to those who have contributed one way or the other to the successful compilation of this report who are not mentioned, I sincerely thank you for all your valuable contributions.

January 1, 2012

FOREWORD- MINISTER'S STATEMENT

I am indeed honored to provide a foreword to this most recent and perhaps the most comprehensive effort undertaken to date to map the genetic diversity of trees and other forest resources of the Solomon Islands by the Ministry.

Trees and forests are among the few things that hold the key to our survival and the survival of many other forms of life, and their multiple roles demand recognition by all stakeholders. Forests can be likened to factories, they produce fibre, timber and non-wood forest products for dependants; they provide water catchment protection; they produce water for agriculture; and are places for social recreation. The mass of our terrestrial genetic biodiversity is to be found in forests and knowing that genetic resources constitute the wealth of a country; our forests are strategically mandated a vital role in protecting this wealth by the creator-YHWH.

Cognizant of the fact that the role of trees and forests is rapidly changing; and that beyond being mainly providers of timber they have a much broader role, with social, environmental, economic and cultural dimensions; conserving forest genetic resources is vital because therein, we have the platform of evolution and mechanism for species adaptation to long tern environmental change. When genetic variations are lost through forest degradation or intensive breeding, successive generations will be less adaptive to adverse environmental conditions.

We recognize the fundamental role forest genetic resources occupy in scientific research and in the development of commercial products, the pharmaceuticals, biotechnology, and seed and crop industries. For that reason, in identifying useful properties of forest genetic resources – often following leads from the traditional knowledge of indigenous peoples and local communities – scientists will be able to better understand biodiversity which in turn can enable the development of new products for the benefit of humankind.

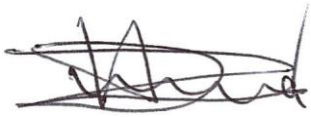
We are living in a time when the pressure and challenges on our forests are immense. Although deforestation at global level generally has slowed in recent times, it is still high in some parts of the world. This has led to increase carbon emissions, water and food supplies shortages, and a precedence loss in biodiversity and genetic resources. This is probably the biggest challenge to Solomon Islands Government and its people to take concrete steps to find ways of conserving and sustainably manage our nations natural

and plantation forests and their genetic resources for the benefit of present and future generations.

The production of this very important report demonstrates that as a country, we have not been sitting idle but have undertaken initiatives to inventory and understand our resources for their conservation and sustainable use. Furthermore, it underpins our recognition of the importance of forest genetic diversity for the conservation and sustainable use of forest biodiversity in the context of addressing climate change and maintaining the resilience of forest ecosystems.

I must acknowledge the Deputy Commissioner of Forest Development & Reforestation: Mr. Richard Raomae for the priceless and tireless dedication and commitment put into researching and compiling the data for this report and the actual production of this fairly comprehensive “State of Forest Genetic Resources in the Solomon Islands 2012 report: It would be remiss of me not to acknowledge the effort of those who provided valuable comments and proof read the drafts and in the printing of the drafts and the final version. Your valuable contributions are very much appreciated.

To the reader, I am confident that this report will not only generate increased interest in Solomon Islands forest genetic resources but will also reinforce confidence in our ability and capacity to deliver reputably.



Hon. Dickson Mua Panakitasi

Minister for Forestry and Research.

ACRONYMS AND ABBREVIATIONS

ABS	Access & Benefit Sharing.
ACIAR	Australian Center for International Agriculture Research
CBD	Convention on Biodiversity
COLP	Code of Logging Practice
CSO	Clonal Seed Stand
EPPL	Eagon Pacific Plantation Limited
ECD	Environment & Conservation department
EU	European Union
FGR	Forest Genetic Resources
FAO	Food and Agriculture Organization
FRTUA	Forest Resources and Timber Utilization Act
FD	Forestry Division
GR	Genetic Resources
IUCN:	International Union for the Conservation of Nature
KFPL	Kolombangara Forest Products Limited
MAR-PSP	Monitoring, Assessment & Reporting- Permanent Sample plot
MAL	Ministry of Agriculture & Livestock
MBK	Makino Botanical Gardens
MECM	Ministry of Environment, Conservation and Meteorology
MoF& R	Ministry of Forest & Research
MOA	Memorandum of understanding
MSBG	Marie Selby Botanical garden
MPDAC	Ministry of Planning, development & Aid Coordination
NATI	National Agriculture Training Institute
NCRA	National Coalition Rural
NFPDP	National Forest Plantation development Program
NEMS	National Environmental Strategy
NRDF	Natural Resource Development Foundation
PIFS	Pacific Island Forum Secretariat
PICTSC	Pacific Island Countries tree seed center
PIC	Pacific Island Countries
RTC	Rural training Center
REDD	Reduce emission from Deforestation and Degradation
SIFMP	Solomon Islands Forestry management Project
SIARTC	Solomon Islands Association of Rural Training Centers
SICHE	Solomon Islands College of Higher Education
SPC	Secretariat of the Pacific Community
SPHA	Species per hectare
SPRIG	South Pacific Regional initiative on genetic resources
SSO	Seedling Seed Orchard
SSPA	Seedling seed production area
SS	Seed Stand
SOLFRIS	Solomon Islands Forest Resources Inventory Survey
SI	Solomon Islands
SIG	Solomon Islands Government
TOR	Term of Reference Advancement

USP	University of the South Pacific
VATA	Value Added Timber Association
WWF	World Wide Fund for Nature

TREE SPECIES

ACAM	Acassia Mangium
CEDO	Cedrella Odorata
CAMB	Cambnosperma brevipitiolata
EUCD	Eucalptus deglupta
GMEA	Gmelina aborea
SWIM	Switenia macrophylla
TECG	Teactona grandis
TERCAL	Terminalia calmansanii
TERB	Terminalia brasii

CONTENT

EXECUTIVE SUMMARY

This report is an update of the state of Forest Genetic Resources in the Solomon Islands which was initiated by the Food and Agriculture Organization of the United Nations (FAO), through the Ministry of Forest and Research (MoF&R) of Solomon Islands Government, in pursuance to the recommendation of the 12th session on the commission on Genetic Resources.

The Report focuses on eight main areas: (1) the current state of Forest Genetic Resources (2) The state of in situ Genetic Conservation (3) The state of ex-situ Genetic Conservation (4) the state of use and Sustainable Management of Forest Genetic Resources (5) The state of National Programs, Research, Education, Training & Legislation (6) the state of Regional and International Collaboration (7) Access to Forest Genetic Resources and sharing of benefits arising from their use and (8) The contribution of Forest Genetic Resources to Food Security, Poverty Alleviation and Sustainable Development.

Compilation of the report has been done over a compressed timeline, where bulk of the data have to be gathered within a short period of time and so as rapid desk assessment with limited time for peer review of the second draft. Information was limited and the report depends significantly on literature gathered from line ministries and stakeholders.

Forest covers over 80% of the country and contributes significantly to the social, environmental and economic well-being of the country. Commercial logging in natural forest provides significant income to Solomon Islands Government (SIG) through export duties and to land owners through royalties. Forest continues to be the mainstay of the economy, followed by agricultural commodities, and fishing; however, the challenges to future economic growth in Solomon Islands (SI) remains. These include the narrow economic base, the dominance and dependence on a declining logging sector, aid dependence, political will, and a growing population that seeks employment opportunities and demand quality social services.

Commercial logging of natural forest over the years drastically changed the vegetation cover of the main islands of Solomon Islands. It is estimated that the forest coverage has decreased from 80% in 1990's to less than 70% today mainly due to large scale logging operations in most of the main islands in Solomon Islands (SI). The latest update on logging concession areas indicated evidence of forest cover loss on logged over areas which also associated with significant loss of natural and ecological value, in terms of their functioning as habitats for biodiversity, sinks for the sequestration of atmospheric carbon, and watershed catchment areas. It is likely that some endemic forest species that are unable to adapt to new environments will face possible extinction

Forest and trees are important resources hence play an important role in development locally, regionally and even globally. As such, it brings with it many challenges and opportunities which contribute significantly to human well-being. In the Solomon Islands, both natural and planted forest plays an important part in the daily sustenance of more than 80% of the population. Its daily usefulness ranges, simply as wood for cooking, timber for housing to even medicine products, hence proper harvesting and management of forests is essential to maintain and increase benefits derived from this resource.

The state of Forest Genetic Resources in Solomon Islands(SI) is associated with the following environmental issues; Over exploitation of Natural Resources, Unsustainable use of Forest Resources, Habitat modification and destruction, Illegal exploitation of wildlife, Introduction of invasive Species; Climate Change and loss of Traditional knowledge and Genetic Resources.

There are currently no systems in place to monitor and report on genetic erosion, neither *in situ* nor *ex situ*. The main constrains to monitoring genetic erosion are lack of skilled personnel, lack of appropriate and easy to apply methodologies and lack of Financial Resources. The major constrains to addressing threats to Forest Genetics Resources in the country are lack of sufficient financial support, insufficient institutional capacity, conflicts generated by the system of land tenure, lack of effective and consistent awareness campaigns, insufficient and weak legislation and political instability. There is an urgent need to

strengthen institutional capacity at different levels of government for promoting effective management of Forest Genetic Resources. Although loss of forest genetic biodiversity is evident in Solomon Islands, it is not possible to say how much has been lost, as there is no information on how much existed before. This calls for detailed surveys and inventories of Forest Genetic Diversity to inform future work.

The main forest tree species currently managed by the Forestry department are confined mainly on species of high economic value in forest plantation such as; *Gmelina arborea, Tectona grandis, Swietenia macrophylla, Eucalyptus deglupta*. Most of these species are planted in forest plantations specifically for timber and pulp and is relatively important for generating income. Other high value native species grow naturally in their natural habitat such as *Pometia pinate, Calophyllum kajewskii, Pterocarpus indicus, vitex coffasus, Instia bijuga* and other durable native species; there is limited work to actively manage these species for productive aims.

There has been little effort to ensure *in situ* conservation of Forest Genetic Resources in the past Forestry sector. The Honiara botanical gardens contains a number of local plants but has been hugely under threat and slightly degraded. It is however remains intact and the Ministry of Forest & Research through the national herbarium and Botanical gardens division is managing the site. They are currently managing and working on upgrading and improving the botanical gardens as this is the only botanical gardens in the Solomon Islands.

There is no national strategy, policy, funding, nor any national facilities for the housing of *ex situ*. No institution has been given responsibility for *ex situ* conservation and there is limited knowledge of what specimens are held elsewhere. There was no concrete and effective *ex-situ* conservation programs develop at National level in the past and must be considered now if the endangered species are going to be protected from total extinction.

Solomon Islanders used the forest in so many ways, according to the statistic report (2009) of the 91,251 households surveyed; 35,115 households use forest materials for walls, 56,374 households use forest materials for flooring, 55,664 for roofing and 84,420 households use forest products for cooking. This dependency on forest products will escalate in the future with the growing population and will pose a threat to the forest resources in the country.

A formal tree improvement programme was initiated in 1988 with *GMEA, TECG*, *EUCD, SWIM, CEDO* and *TERB*. This improvement program was based on a series of consultancies as well as work on seed stands (SS), seedling seed production areas (SSPA) and 'plus' trees initiated within the FD in 1983. The FD and KFPL have given *GMEA* overall priority in the improvement program. Tree improvement work with these species is currently maintained by KFPL now to superior clones whilst the MoF&R is concentrated mainly on *TECG*, *EUCD* and *SWIM* in particular *TECG*, which at present time in the final activity in phase 1 " *Thin test to keep top 60% families and best tree/plot to create SSO*.

The Ministry of Forest and Research of Solomon Islands Government is responsible for the overall management of Forest Resources of the country. The Forestry Act known as the Forest Resources and Timber Utilization Act (FRTUA) which was consolidated in 1969 is outdated and does not reflect or cater for legal control of Forest Genetic Resources, seed production and forest plantation establishment.

Current ongoing national programs are presented which includes both national initiatives and those under international environmental agreements which Solomon islands is a signatory. The current institutional arrangements, policy and legal framework for Forest Genetic Resources and management compliment international agreements under biodiversity conservation.

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Ensuring access to Genetic Resources and their equitable sharing of benefits (ABS) from biodiversity is a key mechanism for addressing the loss of customary practices and of Forest Genetic Resources. Solomon Islands needs to provide an environment that nurtures the development of these skills in order to negotiate fair bio prospecting deals and develop new uses from biodiversity and Forest Genetic Resources

For the forestry sector in Solomon Islands, the issue of food security may seem to be a concern which goes beyond the capacity of its function. And yet in reality, both the natural forest, farm trees provide critical support for agricultural production (e.g. maintaining & improving soil conditions, and maintaining of hydrological systems). They provide food, fodder and fuel, and they provide a means of earning cash income, thus both directly and indirectly forestry activities may have an impact on people's food security and poverty alleviation.

BACKGROUND

This study on the State of Forest Genetic Resources in the Solomon Islands (SI) was initiated by the Food and Agriculture Organization of the United Nations (FAO), through the Ministry of Forest and Research (MoF&R) of Solomon Islands Government, in pursuance of the recommendation of the 12th session on the commission on Genetic Resources.

The Ministry took a leading role in preparing the report in consultation with relevant stake holders and line Ministries through the National Focal Point for preparation of the Country's Forest Genetic Resources report. The study examines the current state of Forest Genetic Resources as well as identifying a collective vision for the future of Forest Genetic Resources in Solomon Islands.

SCOPE AND COVERAGE

The terms of reference (TOR) for the study is based on the FAO guideline to the preparation of the country report on Forest Genetic Resources. This constitutes the main reference document for the country report processing, as outlined below;

a) Undertake a strategic assessment of Forest Genetic Resources in the framework of the national forest programmes. This task is to go beyond a description of the resources. It requires strategic analysis to the report on the current state of resources and capacities to manage them, drawing upon lessons from past experiences and identifying needs and priorities to examine the current state, past efforts and to look to the future, to assess needs, demands, trends and national capacity building requirements in all aspects of sustainable management of Forest Genetic Resources.

b) To report globally on the state of Forest Genetic Resources, on conservation, development and sustainable use activities, needs and priorities. This common framework is crucial to facilitate regional and global analysis and synthesis, as well as to provide a background for updating and analysis, ensuring that strategic investments in Forest Genetic Resources are directed towards national, regional and global priorities. To identify the specific differences and highlight priority needs, while securing a common basis from which to enable the FAO global assessment preparation.

c) Identify gaps and needs in national, regional and global policy-making and thus to enable policy makers to take action, as appropriate, including it through the adoption of a *Global Plan of action for Forest Genetic resources*, should the commission decide on the need for such a plan.

The study focuses on eight main areas: (1) the current state of Forest Genetic Resources (2) The state of *in situ* Genetic Conservation (3) The state of *ex-situ* Genetic Conservation (4) the state of use and Sustainable Management of Forest Genetic Resources (5) The state of National Programs, Research, Education, Training & Legislation (6) the state of Regional and International Collaboration (7) Access to Forest Genetic Resources and sharing of benefits arising from their use and (8) The contribution of Forest Genetic Resources to Food Security, Poverty Alleviation and Sustainable Development.

THE METHODOLOGY

This study was carried out using three approaches: (a) one-to-one consultation with a number of key stakeholders in the country; (b) a desk review of reports and manuscripts obtained from the government ministries and departments and other stake holding agencies; and (c) inputs from key stakeholders during the draft circulation. These three approaches are anticipated to have generated sufficient information and data on which to base this

Report. However, the author acknowledges that there may still be gaps existing in some areas of importance for forests and forest Genetic Resources in the country that are not reflected in this report.

Information on the status of the forestry in the Solomon Islands and the countries forest genetic resources were extracted mainly from the MoF&R through available data and national programs on forest genetic resources. Further collective information on tree improvement programs were made available by different stake holders such as Kolombangara Forest Products Limited (KFPL) and Eagon plantation products limited (EPPL) whilst other national programs related to forest genetic resources were solicited from different stake holders such , The Ministry of Agriculture & Livestock and The Ministry of Environment, Conservation and Meteorology. Other stake holders such as ACIAR, Kastom Garden, KFPL, and SPC contributed significantly as well.

STRUCTURE OF THE REPORT

This report is divided into nine sections. section 1 gives the executive summary of the report, section 2 provides the description of the country and its forest sector as an introduction, section 3 presents the current status of the Forest Genetic Resources, section 4 & 5 highlights the state of *in situ* and *ex situ* Genetic Conservation situation, section 6 discusses the past and current state of Use and Sustainable Management of Forest Genetic Resources, section 7 presents the state of National Programmes, Research, Education, Training and Legislation, section 8 gives the access to Forest Genetic Resources and Sharing of Benefits arising from their Use, section 9, presents the Contribution of Forest Genetic Resources to Food Security, Poverty Alleviation and Sustainable Development

INTRODUCTION TO THE COUNTRY AND FOREST SECTOR

NATIONAL CONTEXT

Geography and Geology

Recent history of Solomon Islands saw Britain declaring a protectorate in 1893, Military occupation by Japan in 1942-1943, and then in 1960 a legislative council and Executive Council was formed. In July 1978, Solomon Islands became an independent nation within the Commonwealth of Nations.

Solomon Islands is a double chain of Islands located in the southwest Pacific between 155˚ 30' and 170˚ 30' W longitude and between 5˚ 10' and 12˚ 45'S latitude. The country comprises of 990 islands with rugged mountains and low lying coral atolls stretching about 1,400 km in a north west to south east direction. The eastern outer islands of the Solomon Islands are located close to the northern end of Vanuatu, and the western islands are located close to Papua New Guinea. There are 990 islands in total covering a land area of around 28,000 square kilometers. The six main islands are *Choiseul, New Georgia, Santa Isabel*, *Guadalcanal, Malaita and Makira*. These islands are intersected by deep and narrow valleys and mostly covered with Tropical rainforest (Whitmore 1969). The Total land area is about 2.837million hectares of which 2.468 million hectares are under customary ownership and 0.369 million hectares is incorporate or private ownership (whitmore 1969)

The Solomon Islands (excluding the Santa Cruz group) is divided into three geological provinces; a pacific province, a central province, and a volcanic province (Falvey *et.al* 1991). The volcanic geological province includes the New Georgia group of islands. The volcanic geological province is much younger and consists of late Miocene to Holocene volcanic, which are only five to six million years old. The higher islands are of volcanic origin with mountainous and steep sided slopes and deep valleys. The lower regions usually have stability while the upper regions become more unstable with outcrops of volcanic rocks. There is usually large drainage systems dissecting the larger islands which become narrow and steep sided towards the interior of the islands. The largest of the islands is Guadalcanal which also has the highest point in the Country at Approximately 2500m above sea level.

Climate

The climate of Solomon Islands is typical of many tropical islands, coastal temperature ranges from 22˚C to an average maximum of 31˚ C throughout the year. Morning relative humidity regularly reaches 90 percent. The mean annual rainfall generally range from 3000mm -5000mm. The south east area of most large islands tends to have more rain from May- October with drier weather on the lee side. The northwest monsoon period from November through April brings heavy rain and cyclone. There are no marked wet and dry seasons, but wet and dry periods do occur with the heaviest rain between November and March whilst two short dry periods occur in April to June and September to October,(Solomon Islands Meteorological Service,2002).

The Solomon Islands as quoted in (Pauku, 2009) "experience some extreme weather events possibly as a result from climate change for example, a drought that affected the eastern part of the country in 2004, which caused severe food shortages to the people of Temotu province; the category 5 cyclone in 2004 which hit Tikopia island, and more recently the earthquake and tsunami which devastated Western and Choiseul provinces in 2007. These extreme weather events increase vulnerability and pose a threat to food security as well as the health and survival of the Solomon Islands biodiversity resources. These Impact on mangrove forests, wetlands, coral reefs and forest. Major shifts in temperature and rainfall may result in the disappearance of fragile ecosystems in these areas and their associated biodiversity".

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Population

The population of SI according to 2009 National census was estimated at 515,870 people with a population density of 17 people per kilometer square. Solomon Islands are predominantly Melanesians with 94.2 percent, Polynesians with 3.7 percent and Micronesians with 1.4 percent and others, 0.7 %. According to the 2009 National census, the population is growing at 2.3 percent and about 81.3 percent live in rural areas. The culture is quite diverse, evidenced by more than 65 different languages. Pidgin is the lingua franca and English is the official language for business, communication and all formal education

Land Tenure System

Land Tenure System- Constitutionally, the land and the natural resources of the country are ultimately vested in both the people and the government. Legally, the Government has a mandate to regulate customary land use in the interest of the nation and of future generation. The Government may also undertake obligations to protect the environment under international law, but in practical, most landowners feel that they should have exclusive control over their own resources.

The land under customary ownership is held by a clan, a group or tribe and is held communally. Lines of decent may be patrilineal or matrilineal and various local laws apply for clan members adopted through marriage. Land boundaries are normally surveyed nor registered with the land authority but clan members know their traditional land boundaries as demarcated by certain streams, trees, rocks or land marks.

The family is the basic social unit; members of extended families live together in hamlets, villages as clans and continue with subsistence production to meet their village livelihood. However, subsistence production is currently under stress due to population increase and pressure from cash economy through heavy reliance on natural resource extraction.

While the fabric of Solomon Islands society is the village, there are significant changes taking place- Most notably our migration to Honiara and other urban centers as people go in search of paid employment as they move into the cash economy and at the same time exploit their resources through manipulation of the state, private companies and individuals (Pauku, 2009)

Economy

Solomon Islands economy recovered strongly in 2010 according to CBSI (2010) annual report. The positive outcome was attributed primarily to strong performances from primary commodities. The primary commodities remain the significant contributors to growth in the economy. The notable contributor to the economy of SI is log production which in 2010 grew by 37% to 1,428,211 cubic meters compared to the 31.4% decline in 2009, the growth in log production is a direct result of firm prices, increased logging activities, back felling, and exportation of new species. The export of logs provides over 70% of export earnings and 18% of total Government revenue and is currently the major source of employment in rural areas

January 1, 2012

Forestry continues to be the mainstay of the economy, followed by agricultural commodities, and fishing; however, the challenges to future economic growth in SI remains. These include the narrow economic base, the dominance and dependence on a declining logging sector, aid dependence, political will, and a growing population that seeks employment opportunities and demand quality social services. Emphasis should be focused on the diversification of the economy particularly by encouraging development of non-commodity sectors to minimize vulnerability to forest stock (round log) and ensure balanced and sustained long term growth.

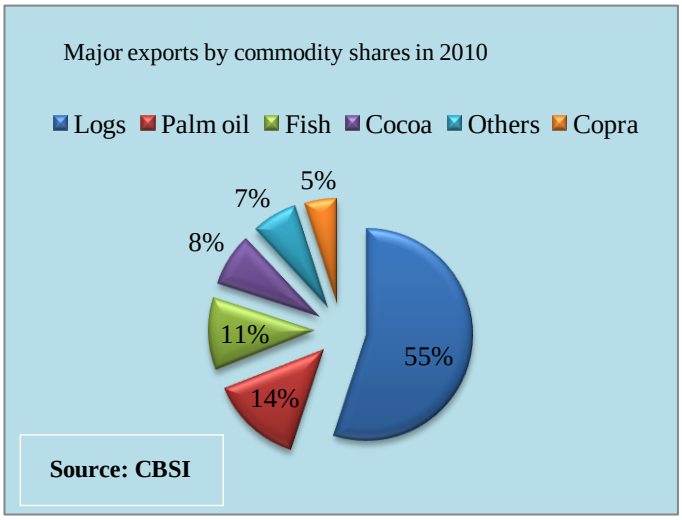

FIGURE 1: MAJOR EXPORTS BY COMMODITIES

FORESTRY OUT LOOK

Forest covers over 80% of the country and contributes significantly to the social, environmental and economic wellbeing of the country. Commercial logging in natural forest provides significant income to Solomon Islands Government (SIG) through export duties and to land owners through royalties.

Forests Resources has significant value and importance to SI. Its People have depended on the forest for their livelihood and will continue to benefit from it in the future. Over the past decades, SI relied heavily on the harvesting of commercial timber trees for export and other forest development activities that resulted in rapid deforestation and degradation due to unsustainable logging, commercial agriculture and infrastructure development. An urgent need remains, for a collaborative approach to establish appropriate policies and management framework to promote and implement sustainable Forest Management initiatives to ensure the continuous benefit in perpetuity.

Consequently, there is concern about the current unsustainable timber harvesting through logging in the country and the likely adverse impact on the economy, if current trends continue unaddressed. Under the National Forest Policy 2010 -2015, priority programs include encouraging private existing investors to participate in implementing a comprehensive downstream processing strategy and plantation development and reforestation. The degradation of forest is not only a concern for the loss of commercial forest species but also impacted on the forest ecosystems and biodiversity of forest species.

The Forests in SI is owned by the people and has been associated with Land, traditions, customs and livelihood. The sad fact is the rapid deforestation and degradation due to unsustainable logging, commercial agriculture and infrastructure development. There is urgent need to establish appropriate policies and management framework to promote and implement sustainable Forest Management initiatives to ensure the continuous benefit to perpetuity.

Forest Industries

The number of companies and individuals involved in commercial timber extraction either for round log export or sawn timber production continue to increase. Currently, a total of 188 felling licenses and 150 timber milling licenses were issued by MoF&R.

Communities and traditional landowners received benefit from log exports through a sharing of revenues. The revenue from log export is allocated as: 60% to logging company, 25% payable to customs (SIG) and 15% for the licensee. The licensee has the timber rights to the logging concession and an agreement with the communities connected to the logging concession through timber rights process.

Log Export

Currently, log export duty is one of the main sources of Government income, and one of the major sources of foreign exchange. It must be noted that Solomon Islands Government over the past years has relied heavily on logging. The current rate of harvesting of the natural forests is four times the sustainable rate. Sources from the Forest industries and utilization division of the MoF&R revealed that in 2010, the total logs harvested and exported exceeds 1,700,000 million cubic meters, which is unsustainable. According to URS-SIFRI, merchantable available forest will be fully harvested by 2016. The trend of log export yearly presented in Fig 2. Annual log export continues to increase from year 2001 at an annual average increase of 173,868.111 cubic meters.

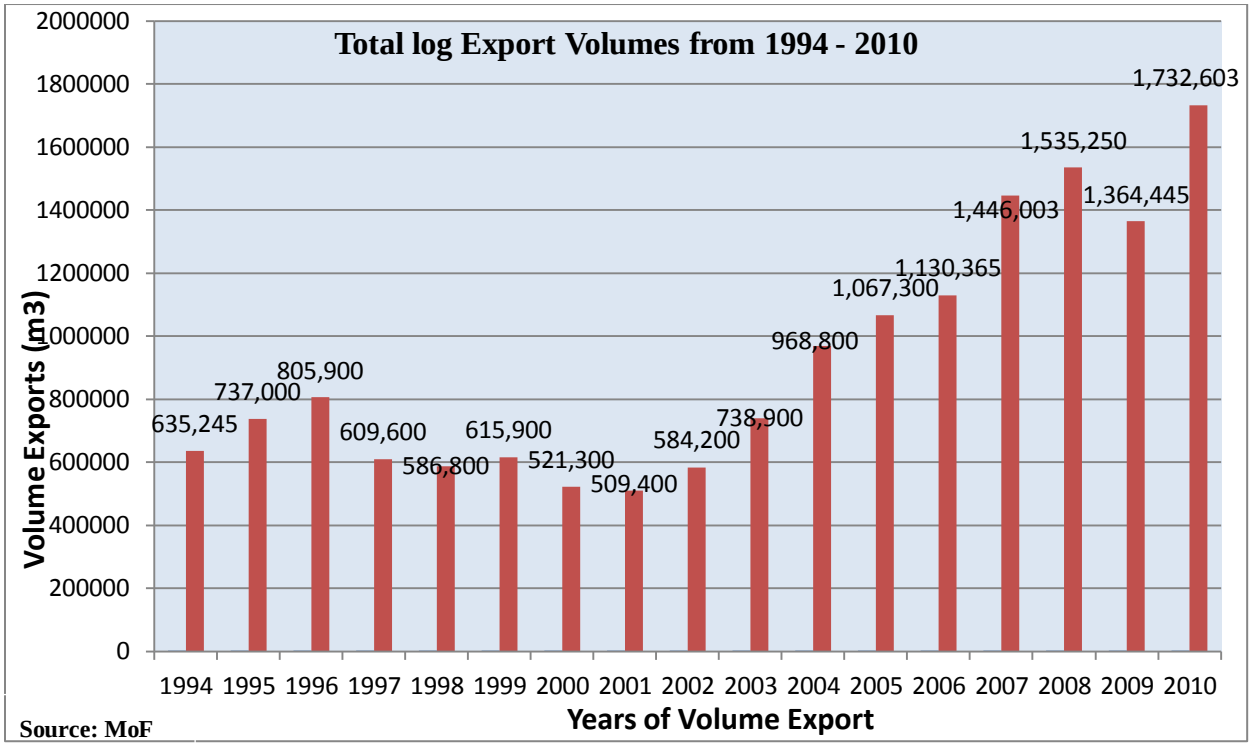

FIGURE 2: SUMMARY OF ROUND LOG EXPORT.

Log Export by Provinces

Log exports by provinces in table 1 shows, Western province continues to dominate log export with an output of 71% of annual output. Isabel Province followed with 7.9% Choiseul 6.8%, Makira 6.4%, Malaita 3.9%, Central 3.1% and Guadalcanal 0.9%. (**Note:** *these figures were collected from 2004-2008 central bank annual report statistics and is subjected to alteration*).The unbalance production based coupled with the unsustainable rate of log extraction is a major concern for resource owners as well as the Solomon Islands Government, not only does it undermines the long term viability of the sector, but may also cause downside second round effects on Government finances.

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TABLE 1: ANNUAL SUMMARY OF LOG EXPORT PRODUCTION FROM 1994 - 2008

Year	Guadalcanal	Western	Isabel	Malaita	Choiseul	Makira	Central	Total
1994	15,400	403,100	50,100	41,300	80,900	26,900	0	617,700
1995	55,100	392,200	102,700	38,400	88,400	40,300	19,900	737,000
1996	76,500	457,800	81,200	37,900	87,500	31,000	34,000	805,900
1997	75,200	284,800	126,100	12,300	83,000	11,500	16,700	609,600
1998	99,900	234,500	130,200	4,500	89,100	11,600	17,000	586,800
1999	21,800	397,700	82,600	13,100	35,700	23,100	41,900	615,900
2000	14,100	322,900	101,300	17,700	44,100	16,100	5,100	521,300
2001	0	282,300	167,400	34,100	8,200	1,500	15,900	509,400
2002	0	357,300	171,800	17,400	21,000	7,200	9,500	584,200
2003	0	471,000	188,500	0	46,000	19,300	14,100	738,900
2004	0	625,000	144,300	20,000	113,200	35,200	30,600	968,300
2005	9,800	725,000	93,600	50,200	76,400	77,500	34,300	1,066,800
2006	9,756	807,867	94,478	50,189	76,382	77,511	34,318	1,150,501
2007	115,160	727,707	234,963	114,599	205,856	181,720	3,000	1,583,005
2008	147,275	465,819	245,594	102,244	125,216	198,168	50,060	1,334,376
Total	**639,991**	**6,954,993**	**2,014,835**	**553,932**	**1,180,954**	**758,599**	**326,378**	**12,429,682**
Average	36,791	353,828	120,385	27,796	78,730	50,573	21,759	826,504

Source: Ministry of Forestry & Research

Felling Licenses

The Ministry of Forestry continues to grant logging licenses to companies and landowners to carry out logging on customary land as well as timber milling licenses to process sawn timber. Currently there are 188 felling licenses issued by the MoF&R (table 2) of which 125 licenses are locally owned, 63 licenses owned by foreign companies and 366 timber milling licenses. Western province has the highest record of felling licenses issued while Malaita province has the highest record of milling licenses

TABLE 2: CURRENT TYPE OF FELLING & MILLING LICENSES FROM JANUARY – SEPTEMBER 31ST2011.

Location	Timber Milling	Foreign Owned Licenses	Local owned Licenses	Total Existing Licenses
Malaita	97	0	35	35
Western	88	19	34	53
Choiseul	46	8	6	14
Isabel	73	22	13	35
Guadalcanal	78	11	12	23
Makira	75	1	19	20
Central	46	2	2	4
Temotu	57	0	1	1
Renbel	31	0	3	3
Total	**366**	**63**	**125**	**188**

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Sawn timber export

Sawn Timber Export volume has also recorded an increase of 20% from 11,033 cubic meters in 2009 to 13,267 cubic meters in 2010.This has been resulted from the sustainable harvesting strategy implemented by the MoF&R through the Downstream processing project. It is expected that sawn timber export, value added timber and wood products would increase as more mills and chainsaw are issued through the Downstream processing projects. Also, it is anticipated that more timber milling would be done by logging operators and license due to policy, regulated and conditional requirement of 20% timber processing by all license holders and operators.

Currently Sawn Timber markets are sporadic, irregular few species specific, more promotion on other local abundant timber species to open up wider market opportunities to resource owners and timber exporters. As observed, value added timber products attract higher price per unit quantity and suitable for local operators and individual to undertake compared to round log extraction. Also, it enhances sustainable harvesting and reduces forest disturbance and destruction. It is the right industrial development activities that need to be fully supported and encourage in the Timber industry sector. Refer to Summary of sawn timber export in 2003-2011 is shown in Table 3 below.

TABLE 3: SUMMARY OF SAWN TIMBER EXPORT IN 2003-2011

year	volume(m^3)	SBD	USD
2003	6834.553	9,306,617.44	824,137.24
2004	8427.787	16,409,713.81	334,937.71
2005	708.505	12,264,022.80	374,171.72
2006	11,509.18	17,614,821.31	1,554,048.95
2007	12,181.08	29,637,064.87	1,733,747.70
2008	14,595.52	34,780,644.29	2,717,760.36
2009	11,248.79	40,216,835.21	684,853.95
2010	13,213.70	54,428,940.93	617,905.48
2011	1,780,179.00	1,718,355.55	151,396.97
Total	**1858898.109**	**216,377,016.21**	**8,992,960.08**
Average	**206,544.23**	**24,041,890.69**	**999,217.79**

Source: Ministry of Forest & Research

Unlogged natural forest

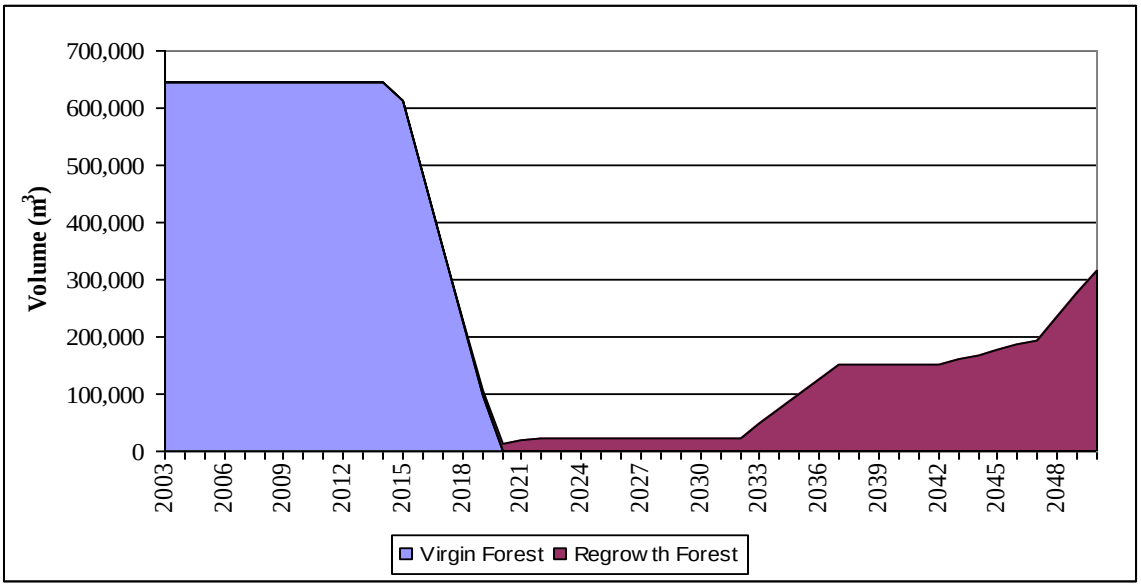
Solomon Islands have a gross land area of 2,805,200 hectares of which 560,000 hectares or 20% is classified as loggable.Of this area approximately 183,000 hectares has been logged, leaving 377,000 hectares of virgin forest still available. It can be seen that some Provinces, such as Western Province have been heavily exploited and have only a few years resource remaining. Other Provinces such as Choiseul have not been heavily harvested and could continue to sustain logging operations for a longer than other provinces.

Virgin forest is currently being logged for both export logs and domestic timber at the rate of around 6-700,000m^3/yr. This rate is unsustainable, and if it continues, it is expected, that the virgin forest could continue to

provide logs until 2018 when the resource will become exhausted (URS, 2006). Of course the rate of harvesting depends on a range of factors such as Landowner support for logging, Government Policy and timber markets. Such factors have the potential to increase or decrease the rate of harvesting. If we wish to bring the industry back to a sustainable level, we would need to reduce the harvest volume, both export and domestic, to 250-300,000m³/yr.From 2050 this level could be lifted to 400,000m³/yr. The current Government policy is to maintain a natural forest harvest of around 500,000m³/yr, although no mechanisms have been put in place to allow this to occur.

Re-Growth Forest

In Solomon's, the area of re growth forest is continuing to increase as virgin forest is logged. Very little of this area is being logged currently as the forest has yet to recover sufficiently. It is anticipated that significant re-entry logging in logged over forest will commence around 2020, initially producing around 50,000m³/yr. This will climb over time as larger areas become commercially viable again. If managed well the re-entry logging could be by 2050 that support a sustainable harvest volume around 400,000m³/yr as indicated in Figure 4. However, regrowth of natural forest may not be as expected due to current re-entry logging trend.



Source: URS, 2006

FIGURE 3: NATURAL FOREST & REGENERATION WOOD FLOW

Estimated remaining loggable forest

The reference figure from 2006 update is still used as a guide to estimate other quantities of forest timber resources that are of immediate concern to us. The committed merchantable forest under the current valid logging license holds an estimate of 9,594,345 cubic meters of export volume. Some of these stocking are already exported over the period of validity within the valid concession areas. The longest valid period from the year of issue to 2011 has contributed a lot in the log export industry. Log export record from 1994-2010 is 15,226,730 cubic meters.

Under Valid logging license concession area, it has a gross land area of 843,625 hectares but the excluded areas were deducted to give a loggable forest area of 309,495 hectares. The 2006 update excluding Temotu and Renbell Province has a national estimate of 7,841,800 cubic meter of untouched loggable forest. The current

update with the inclusion of the two provinces justified that the 2006 figure should be about 8,818,035 cubic meters. The remaining merchantable forest area has a growing stocking of 4,627,459 cubic meters as indicated in table 4**.**

TABLE 4: ESTIMATED REMAINING MERCHANTABLE FOREST AREA SUITABLE FOR LOGGING & DOWNSTREAM PROCESSING

PROVINCE	2006 Assessment Update (M^3)	Commercial Forest Yield M^3/Ha	FRIS Update (M^3) Remaining Merchantable Volume		Remaining Merchantable forest Areas (Ha)		Merchantable forest area by Slope Category
			2010	2011	2010	2011	
Guadalcanal	481,200	12	238,218	238,218		16,204	Commercial forest 0-15 deg slopes
						2,453	Commercial forest 15-30 deg slopes
						1,522	Semi-commercial forest 0-15 deg slopes
						6,502	Semi-commercial forest 0-15 deg slopes
Sub-Total					**26,681**	**26,681**	
Choiseul	2,573,000	31	1,756,783	897,760		28,960	Commercial forest 0-15 deg slopes
						40,231	Commercial forest 15-30 deg slopes
						13,229	Semi-commercial forest 0-15 deg slopes
						15,995	Semi-commercial forest 15-30 deg slopes
Sub-Total					**98,477**	**98,415**	
Western	2,079,000	42	1,487,947	1,380,634		22,117	Commercial forest 0-15 deg slopes
						16,680	Commercial forest 15-30 deg slopes
						5,242	Semi-commercial forest 0-15 deg slopes
						2,196	Semi-commercial forest 15-30 deg slopes
Sub-Total					**49,544**	**46,235**	
Malaita	751,400	26	652,912	817,032		11,730	Commercial forest 0-15 deg slopes
						17,524	Commercial forest 15-30 deg slopes
						15,763	Semi-commercial forest 0-15 deg slopes
						15,322	Semi-commercial forest 15-30 deg slopes
Sub-Total					**52,372**	**60,339**	
Makira	487,200	28	178,571	178,114		1,655	Commercial forest 0-15 deg slopes
						5,921	Commercial forest 15-30 deg slopes
						2,120	Semi-commercial forest 0-15 deg slopes
						4,712	Semi-commercial forest 15-30 deg slopes
Sub-Total					**14,628**	**14,408**	
Isabel	1,190,700	21	849,078	754,090		21,590	Commercial forest 0-15 deg slopes
						13,030	Commercial forest 15-30 deg slopes
						16,200	Semi-commercial forest 0-15 deg slopes
						10,200	Semi-commercial forest 15-30 deg slopes
Sub-Total					**70,556**	**61,684**	
Central	279,300	49	203,677	203,677		2,105	Commercial forest 0-15 deg slopes
						2,418	Commercial forest 15-30 deg slopes

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						2,018	Semi-commercial forest 0-15 deg slopes
						462	Semi-commercial forest 15-30 deg slopes
Sub-Total					**7,003**	**7,003**	
Temotu	509,532	46	469,724	469,724		10,439	Commercial forest 0-15 deg slopes
						11,941	Commercial forest 15-30 deg slopes
						4,543	Semi-commercial forest 0-15 deg slopes
						3,457	Semi-commercial forest 15-30 deg slopes
Sub-Total					**30,380**	**30,380**	
Rennel	466,703	14	442,333	373,941		21,417	Commercial forest 0-15 deg slopes
						4,363	Commercial forest 15-30 deg slopes
						6,943	Semi-commercial forest 0-15 deg slopes
						2,949	Semi-commercial forest 15-30 deg slopes
Sub-Total					**49,963**	**35,672**	
Grand Total			**6,279,243**	**4,627,459**			

Source: Ministry of Forest & Research

Commercial Logging

Commercial logging of natural forest over the years drastically changed the vegetation cover of the main islands of Solomon Islands. It is estimated that the forest cover has decreased from 80% in 1990's to less than 70% today mainly due to large scale logging operations in most of the main islands in SI. The latest update on logging concession areas (SOLFRIS 2010) indicated in Figure 3 provide evidence of forest cover loss on logged over areas which also associated with significant loss of natural and ecological value, in terms of their functioning as habitats for biodiversity, sinks for the sequestration of atmospheric carbon, and watershed catchment areas. Some endemic forest species that are unable to adapt to new environments face possible extinction (Pauku, 2009).It also highlights the current remaining merchantable forest, areas committed for logging operations, logged over areas, current valid logging licenses and expire concession areas.

KEY:

Remaining Merchantable Forest
Committed Merchantable Forest Area
Logged Over Area
Current valid logging license
Logged and expire concession area

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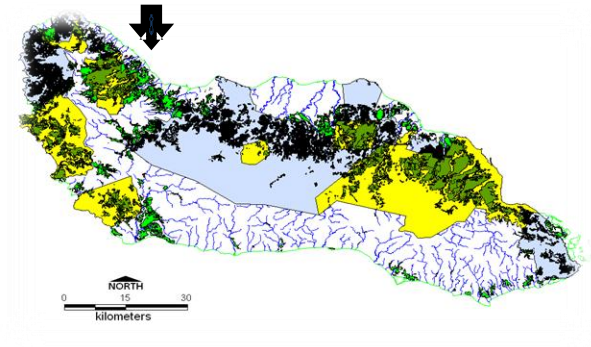
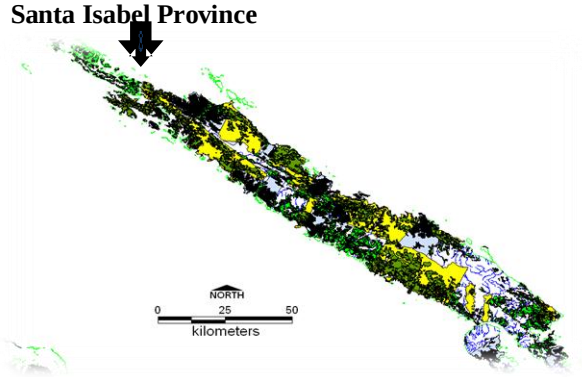
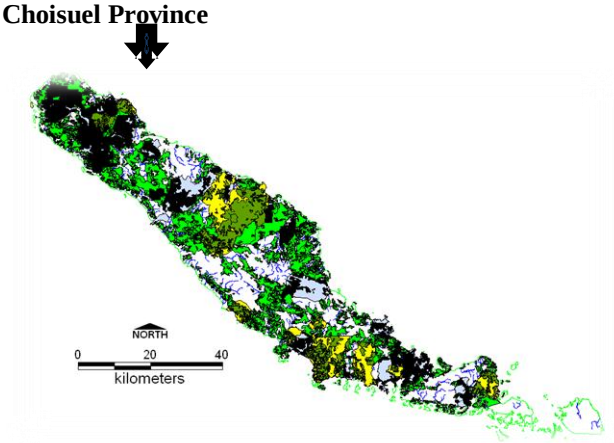
Guadalcanal Province



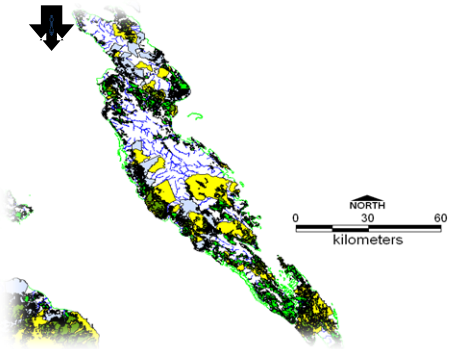
Santa Isabel Province



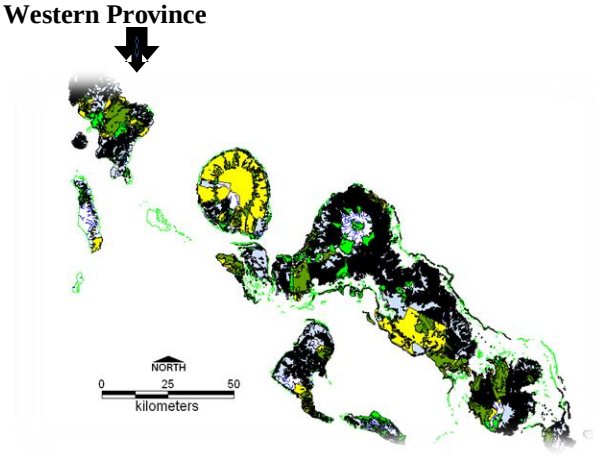
Choisuel Province



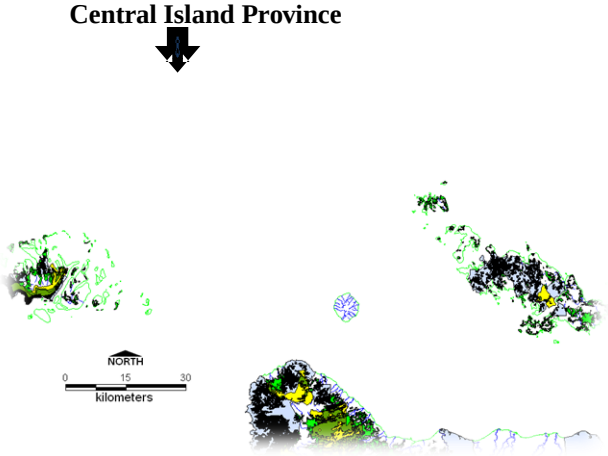
Malaita Province



Western Province



Central Island Province



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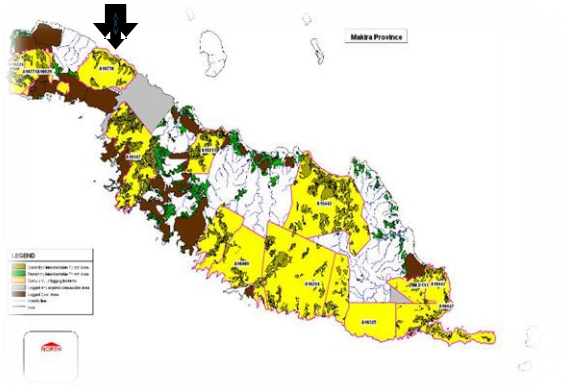
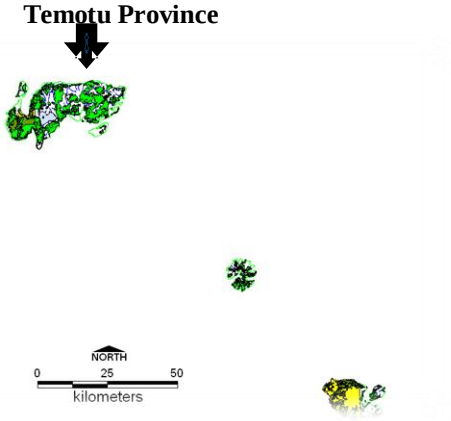
Makira Ulawa Province



Temotu Province



Rennel & Bellona Province

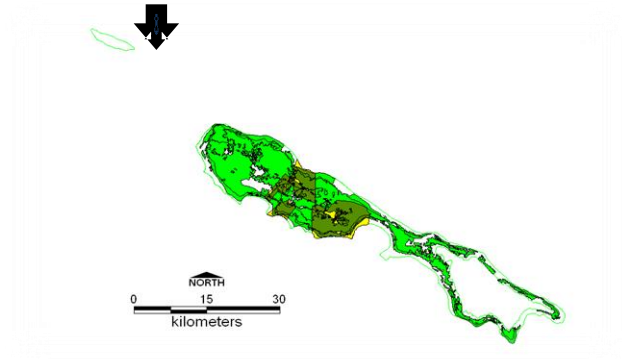


FIGURE 5: LOGGING CONCESSION AREAS IN THE PROVINCES OF SOLOMON ISLANDS

Key issues and an overview of overall state of forests and forestry

The critical concern for the forestry in the Solomon Islands is the rapid depletion of the natural commercial forest as a direct impact of; large scale logging activities, agricultural development, subsistence farming and population increase. Wood flows from natural forest are rapidly declining with little effort to naturally rehabilitate logged over areas and or promote large scale forest plantation establishment. The implication for sustainability of the forest industry, trade in forest products and support to rural development and livelihood will be significant. As stated by Pauku, (2009), the impacts are already felt, with the industry adapting to maintain its productivity by re-entering logged over areas to extract super small grades of natural timber and reverting to portable sawmilling to stay viable. Even with the promotion of small scale holder plantation and industrial plantation, the gap between stock in forest plantations and harvesting of natural forest remains significantly incomparable as EPPL and KFPL are also extracting logs from industrial plantations established posing downside to sawmilling ,downstream processing, and value added timber processing in the future.

The Solomon Islands government must consider forest development as a priority national forest program so that provisions to rehabilitate logged over natural forest through natural forest enrichment and promote mass scale replanting program of high value forest plantation species are in place. The SI forest plantation logs are significant, primarily because it has the improved genetic material, technical expertise and climate to produce high quality timber such as TECG, SWIM, Rose wood, Taun (akwa) and others. (Forest Development & Reforestation,

and downstream processing programs implemented by the MoF&R is further presented in Chapter 6 of this report under the current national forestry programs).

The vast majority of the natural forest in the Solomon Islands is in traditional ownership. This traditional ownership is in fact a form of private rather than state ownership. This is in contrast to many other countries whose natural forests are in public ownership and therefore their governments have a much greater ability to manage them in the national interest. In Solomon's any moves to limit a landowning group's ability to dispose of its forests as they see fit, would be regarded by them as interfering with their rights of private ownership. The Land and Titles Act and other statues, including the proposed new Forests Act, have mechanisms that provide for the State to impose limits on the use of private land; however where this is in the national interest the understanding is that the owners will be compensated for any rights foregone. In the current economic conditions the State is in no position to make such compensation. This has important consequences for the creation of a conservation estate.

While most agree that the creation of a conservation estate would be in the national interest there is no functioning institutional framework for its advocacy, creation or management. Even if such a framework existed then there would be problems in funding it. For these reasons none of the conservation areas identified by SOLFRIP have been reserved and in fact many have already been logged. Under the current land tenure system it seems unlikely that this will change in either the short or medium term.

CHAPTER 1

STATE OF FOREST GENETIC RESOURCES IN THE SOLOMON ISLANDS

Forest and trees are important resources hence play an important role in development locally, regionally and even globally. As such, it brings with it many challenges and opportunities which contribute significantly to human well-being. In the Solomon Islands, both natural and planted forest plays an important part in the daily sustenance of more than 80% of the population. Its daily usefulness ranges, simply as wood for cooking, timber for housing to even medicine products. Its existence provides habitat for wildlife, as well as protecting both land and marine water quality. Its economic benefit includes significant income for the Government through export duties and to landowners through royalties; hence proper harvesting and management of forests is essential to maintain and increase benefits derived from this resource.

The state of forest genetic resources in the SI is associated with the following environmental issues; Over exploitation of natural resources, Unsustainable use of forest resources, Habitat modification and destruction, Illegal exploitation of wildlife, Introduction of invasive species; Climate change and loss of traditional knowledge and genetic resources.

Floristically, the forests of Solomon Islands are related to Malesia, although there are fewer genera and species and the trees are generally smaller. While Solomon Islands vegetation generally exhibits low endemism relative to Western Melanesia, some plant groups exhibit high levels of endemism. More than 50% of the palm and orchid species, and 75% of climbing *Pandanus* species are endemic. The "ancient" plants such as the Winteraceae family are also of particular interest to scientists, with several species considered rare and endangered (Henderson et *al* 1988)

The forests of the Solomon Islands are comprised primarily of lowland and hill rainforest, with several broad vegetation types including coastal strand vegetation, mangrove forests, freshwater swamp forests, lowland rainforests, seasonally dry forest and grassland, and montane forest. One of the key features of interest is the high degree of compression in forest zones compared to larger and higher mountain ranges in nearby New Guinea. The montane rainforest zone occurs at altitudes as low as 700m on Kolombangara, Makira and Guadalcanal.

Rainforest dynamics in Solomon Islands rainforests are strongly influenced by natural disturbance, specifically cyclones, and succession patterns are influenced by the creation of gaps in the forest canopy. Human impacts, including 19th century large-scale taro field terracing, past settlement patterns, and traditional swidden agricultural practices have created a mosaic of secondary forest successions in many lowland forest areas. Of the 4500 plants present in Solomon Islands rainforests, over 600 are used by indigenous communities for food, housing materials, medicines and cultural uses (Henderson and Hancock, 1988). These forests have traditionally played, and continue to play, critical roles in defining and maintaining cultural identities of their traditional landowners.

SPECIES ECOLOGICAL ZONATION BY VEGETATION

As quoted from Henderson and Hancock (1988) the species characterization and ecological zonation of different forest types in the SI is as follows;

Grass land

The grassland covers extensive areas of the northern plains and foot hills of Guadalcanal are also found on the Florida's, and to varying degrees on the other major islands in the group. Despite their quite common occurrence, they only account for between 1-2 % of the total land area in the Solomon's. It is unlikely that these grasslands (predominant grass species *Themada australis*, *Imperata cylindrical* and *Pennietum polystachyon*) represents the

original climax vegetation and are almost certainly the result of human intervention in origin. There are only a few truly indigenous grasses and legumes, and most species are recent introductions. These areas remain as the result of damage to re growth by annual fire burn. The final effect is grassland dominated by Kangaroo *Themeda australis*, usually in association with *Imperata cylindrical* other herbs are present including *Emilia sonchifolia, Mimosa invisa, Oolygala paniculata*, *Uraria lagopodioides* and small herbaceous climber. In poorly drained areas, the following herbs are common: *Cyperus* spp., *Phragmites karka* and *Saccharum spontaneum*. In association with these herbaceous species are, rarely, low shrubs such as *Crotalaria striata*, *Morinda citrifolia* and *Premna corymbosa*, all of which appear sufficiently hardy to survive the periodic fire burn. Where the burn has not been too severe, low tree species (<3m high) are found, for example *Casuaria equisetifolia*, *Colona scabra, Commersonia bartramia*, *Timonis timon* and *Trichospermum psilocladum*. Ferns *Cheilanthus tenuifolia* and *Lindsaea ensifolia* are also found growing in association with *Themeda australis*, particularly on shallow degraded hill soils, and soils derived from ultrabasic rocks, on Choiseul and the Florida's for example.

Swamps

These account for 6.4% of the land area, of which 2.3% and 4.1% are saline and fresh water swamps respectively. The exact distinction between the two is arbitrary as saline swamps commonly merge into fresh water swamps. Mangrove forest on saline swamps occurs on most islands, and covers large coastal areas on Isabel, Malaita and New Georgia, and the eastern ends of Guadalcanal and Makira. This ecosystem is characteristically poor in species with *Bruguiera* spp. and *Rhizophora* spp. The most widespread, and *Avicennia* spp. Occurring locally. On land which is submerged, with soils vary from deep peat to coral debris at the seaward side, e.g. Coral platforms; the major species is *Rhizophora apiculata.* Nearer shore, in areas where the soil surface is exposed at low tide, mixed stands of *R. apiculata* and R. stylosa are found, in association with *Bruguiera* spp. Other commonly occurring trees, forming a canopy up to 25m tall, include *Ceriops tagal*, *Dolichodrone spathacea* and *Lumnitzera littorea*. Further inland the influence of salt water progressively declines, and the vegetation changes from being dominated by the tree species *Sonneratia* spp. and *Xylocarpus granatum*, to a mixture of *Calophyllum inophyllum*, *Fragraea racemosa*, *Heritiera littoralis*, *Intsia bijuga* and *Pandanus spp*., with ferns and the shrub *Acathus ebracteatus* over a thin herb layer. There are four major types of fresh water swap, namely, mixed herbaceous, palm, panda and swamp forest. Of these only the last, swamp forest, is important, occurring on most of the islands in areas where the water table is at, or close to the surface for most of the year. Many swamps are not dominated by a single tree species, but are characterised by an association of species, both in the canopy and lower tree storey. Within these, 'mixed swamp forests', where soils are very poorly drained or are waterlogged, *Inocarpus fagiferus* and *Eugenia tierneyana* are commonly found in association with other tree species such as *Barringtonia* spp., *calophyllum vitiense* and *pterocarpus indicus*. The canopy tends to be broken and generally uneven, and in the lower storey's a large number of small trees and saplings predominate. Below this is a shrub layer of seedlings, aroids and *pandanus*, and climbers and epiphytes (Stenochlaena spp. and Rapphidophora spp.) are common in this environment. In contrast to these mixed swamp forests are those dominated by a single species, the most usual of which are the *Campnosperma brevipetiolatum*, *Casuarina papuana* and *Terminalia brassii* swamp forests.

Lowland Rainforest

Throughout most of the islands in the Solomon's, lowland rain forest is the climax vegetation. It is a species rich formation which is in many ways floristically similar to that of Malesia, the area defined as a coherent floristic region, including Malaysia, Indonesia, Philippines and Papua New Guinea, but excluding Bougainville. However there are fewer families, genera and species, and the area contains distinctive groups of Pacific and local Melanesia genera. In this forest type there are only twelve species of big trees (*Calophyllum Kajewskii*, *C.pseudovitiense, Campnosperma brevipetiolatum*, *Dillenia salomonensis, Elaeocarcus sphaericus, Endospermum medullosum,Gmelina moluccana, Maranthes corymbosa, Parinari salomonensis,* pometia pinnata, *Schizomeria serrata* and *Terminalia calmansanai*) found among the canopy (Hendersen *et al* 1988). Large areas of these forests are locally broken with regrowth species colonizing gaps caused by the influence of man and cyclones. Species which indicate past disturbance and are common in this ecosystem are *Canarium* spp. and *Vitex cofassus*. The lower trees and shrub layers consist of such species as *Barringtonia* spp., *Boerlagiodendron* spp., *and Leeaindica and Areca catechu*. Below this the herb layer is irregular and patchy, and where gaps appear in the canopy spp. bamboos and gingers predominate. Climbers and epiphytes are abundant especially at

higher altitudes where rainfall is greater. Previously over 76% of the land area was in lowland or associated forest types. However in recent years the effect of man has reduced substantially, particularly as a result of logging operations and increased cultivation. Additionally, it is important to note that once the rain forest has been removed, it never re-establishes to the original ecosystem that was present before intervention.

Though overall the flora in these forests appears monotonously similar, some variations do occur when comparing the different islands within the Solomon's, such as Isabel, New Georgia and Choiseul have large areas of forest dominated by a single species, such as *Campnosperma brevipetiolatum*, with secondary species such as *Burkella obovata, Gmelina moluccana* and *Pometia pinnata.* Topography as well as soils and drainage, affects the flora. For example the large trees *Albizia salomonensis*.*Archidendron oblongum* and *Planchonella thysoidea* are found only in alluvial valleys. On parts of some islands (e.g. Choiseul, Isabel and Vanikolo), the soil derived from ultrabasic parent material, with high levels of nickel and chromium, which produces a particular type of plant community predominated by *Casuarina papuana* and the palm *Gulubia hombronii*. This ecosystem has a restricted flora with *Buroke obovata, Dacrydium* spp., *Eugenia* spp., Fagraea *gracilipes* and *Xanthostemon* spp., and the *pandanus saranga sinuosa* in the shrub layer, together with the climbers *Freycinetia* and *Flagellaria* spp.

Two major deviants from the lowland rain forest are the beach and the mixed deciduous forests. Although together they account for only 2.5% of the total land area, they are of interest floristically. The former is characterized by a high(20-25m)rather open canopy dominated by the species *Barringtonia asiatica*, *Calophyllum inophyllum*, *Cerbera manghas, Heritiera littoralis*, *Intsia bijuga* and the Indian Almond (*Terminalia catappa*, with *Casuarina equisetifolia* common on coastal fringes .The lower storey includes *Diospyros* spp. ,*Ficus austrina*, *Hibiscus tiliaceus, Kleinhovia hospita*. *Morinda citrifolia* and *Premna corymbosa.* Palms are uncommon, but *Panadanus* species do occur, and the shrub layer is commonly inhabited by gingers. Orchids and other epiphytes are present on the large trees. In many areas this forest type has been replaced by coconut plantations, but it is also the common ecosystem found on the atolls within the Solomon's group, though differing from the high islands by having fewer species.

The mixed deciduous forest is very distinctive and occurred only in north Guadalcanal, where there is a seasonally dry period from June to October every year. This forest has an open appearance with a high proportion of small trees (*Canaga odorata*, *Colona scabra* and *Semecarpus* spp.), with *Buchanania arborescens*, *Keinhovia hospital*, *Pometia pinnata* and *Vitex Cofassus* constituting the typical canopy. It also has a group of trees species which are characteristic of seasonally dry areas found elsewhere in the world (East java in Indonesia, Queensland in Australia and Papua New Guinea). These are *Garuga floribunda*, *Gyropcarpus americanus*, *Melia dubia* and*Schleintzia novoguineensis*. In contrast to the beach forest, palms are very, common; particularly the climbing palms species (*Calamus* spp. *Rehderophoenix subdisticha* and *Strongylocaryum latius*).

Montane Forest

In the Solomon Islands the rain forests change rapidly with increasing altitude. The net result of this is a marked reduction in the number of species present, together with a change in the actual species which colonize these areas. The combined effect of the compression of vegetation zones and absence of certain floristic groups is that no clear lower montane forest zone can be distinguished, and there is a distinct boundary with increasing elevation to upper montane rain forest. In this upper montane rain forest, moss is very common on the ground and tree tracks, with peat covering the shallow mineral soil. The trees are stunted (maximum height7-9m) with a very broken canopy, and the species *Dacrydium* and *Eugenia* predominate, while smaller trees and shrubs include *Pemphis acidul* and the bamboo *Racembambos holttumii*. Ferns, particularly *Gleichinia kajewskii* and *Dipteris spp*. are found in association with scrambling *pandanus*.

Secondary Vegetation

Of the order of sixteen percent of the land is either under secondary regrowth, or is presently cultivated. As a result of increased population pressure, both these types are increasing at the expense of other ecosystem, particularly the lowland tropical rain forest. A major factor which influences the forest flora is the impact of shifting cultivation where gardens are abandoned and allowed to revert to forest after cultivation for one to two years. These old gardens rapidly become recolonised by secondary regrowth species. The general course of events is that herbaceous regrowth rapidly establishes itself as soon as weeding in the garden ceases, with grass species like 'T' or Sour grass(*Paspalum conjugatum*) predominating. The noxious weed grasses *Imperata cylindrical* and

Pennisettum macrostachyum occur on intensively used gardens with short fallows. This weed problem is becoming more severe as suitable land for gardens becomes more difficult to find. So long as the cropping cycle remains of normal duration (<2 years), and the soil has not been unduly degraded, the herbaceous growth phase is rapidly superseded by woody regrowth. The pioneer species of the typical secondary forest are light-demanding species, the most important being *Acalpha grandis, Alphitonia incana, Hibiscus tiliaceus, Macaranga spp. ,Melochia umbellata, Pipturus argentus and Schleinitzia novo-guineensis, together with a mixture of Musa and Heliconia spp*..

As the fallow progresses, these intial species lose their dominance as others such as *Paraserianthes falcataria*, *Cananga odorata, Ficus* spp. *Kleinhovia hospital, Rhus taitensis* and *frichospermum pslocladum*, more typical of older secondary regrowth, begin to compete. The breadfruit (*Artocarpus altilis*) is almost always found in the regrowth forest, and to a lesser extent, the mango (*Mangifera indica*). At this stage in the cycle, tree ferns (*Cyathea brackenridgei and C. lunulata*) are re-established, particularly in the hill areas of the large islands, as also are the palms *Areca catechu* and *Caryota rumphiana*, with gingers in the shrub layer. Some of the large tree species subsequently become apparent, usually *Pometia pinnata* and *Vitex cofassus*.

The Taxonomic Composition of Major plant Groups for the Solomon Islands.

Group	Order	Family	Genera	Species
Dicotyledons	63	134	680	1942
Monocotyledons	20	32	280	841
Gymnosperms	3	5	7	22
Fern Allies	14	30	105	331
Total	**104**	**205**	**1077**	**3172**

Source. Croft (1988) in Henderson and Hancock (1988)

FOREST TYPE AND COMPOSITION

General Forest Types in Solomon Islands by area in differences provinces according to table 5 indicated that Hill forest occupies more than 75% of the total different forest areas followed by lowland forest; this is where most of timber production and subsistence farming activities occurs.

TABLE 5: GENERAL FOREST TYPES AND AREAS IN SOLOMON ISLANDS

Vegetation Type	Guadalcanal		Central		Malaita	
	Area (ha)	% land area	Area (ha)	% land area	Area (ha)	% land area
Montane	51204	9.6	174	0.3	6612	1.6
Hill	401936	75.1	38765	61.3	354544	84.4
Lowland	58844	11.0	13546	21.4	20144	4.8
Freshwater & riverine	10100	1.9	2700	4.3	10705	2.5
Saline swamp	1328	0.2	3112	4.9	9992	2.4
Grassland & other non-forest areas	10920	2.0	212	0.3	4016	1.0
Vegetation Type	***Choisuel**		**Isabel**		**Western**	
	Area (ha)	**% land area**	**Area (ha)**	**% land area**	**Area (ha)**	**% land area**
Montane	704	0.2	10164	2.5	22044	4.4

Hill	286868	87.0	325667	78.7	351436	69.9
Lowland	5932	1.8	17812	4.3	53312	10.6
Freshwater & riverine	10760	3.3	25216	6.1	39888	7.9
Saline swamp	4144	1.3	17885	4.3	10544	2.1
Grassland & other non-forest areas	7128	2.2	8215	2.0	18756	3.7
Vegetation Type	**Makira**		**Renbell**		**Temotu**	
	Area (ha)	**% land area**	**Area (ha)**	**% land area**	**Area (ha)**	**% land area**
Montane	11204	3.4	-	-	512	0.6
Hill	265466	80.4	23120	33.1	56500	65.3
Lowland	14996	4.5	2200	3.1	6076	7.0
Freshwater & riverine	9096	2.8	280	0.4	200	0.2
Saline swamp	908	0.3	188	0.3	2504	2.9
Grassland & other non-forest areas	8610	2.6	528	0.8	8172	9.4

Source: Pauku, 2009[1]

DIVERSITY WITHIN SPECIES

The Solomon Islands flora is estimated to be around 5,000 species, however, a total of about 3,500 plant species have been discovered and described to date. There are about 500 to 600 introduced (exotic) species of plants that have been brought into the country for several different reasons. About 100 tree species are valuable timber species which are mainly harvested for sawn timber processing and round log export. Only few species are harvested for processing due to limitation in durability.

There are six basic vegetation types in the Solomon Islands. These comprised of Lowland rainforest, Hill forest, montane forest, Freshwater swamp and riverine forest, Saline swamp forest and grasslands and other non-forest areas. The growth and distribution of Solomon Islands forest resources are almost uniformed except the western part of the country which is much more dense and diverse in forest resources due to higher rainfall regime. The country is divided into six main vegetation types: Lowland rain forest, which cover approximately 8 percent (236,606 ha) of the land area, hill forest which cover approximately 78 percent (2,104,302 ha), montane forest which covers approximately 4 percent (102,618 ha) of the land area, fresh water swamp and riverine forest which covers approximately 4 percent (108,945 ha), saline swamp mangrove forest which covers 2 percent (50,574 ha) of the land area, and grasslands with 2.4 percent (66,557) of the country's land area.

Woodlands are dominated by *Pometia pinnate, Calophylum kajewskii, Vitex coffasus* which are the most valuable timber species, while a variety of non-wood forest products, especially indigenous fruit tree species, contribute to the rural economy when traded for cash. Although loss of forest genetic biodiversity is evident in Solomon Islands, it is not possible to say how much has been lost, as there is no information on how much existed before. This calls for detailed surveys and inventories of forest genetic diversity to inform future work.

*[1]The Total land area does not exactly agree with the gross area of the country as not all Islands are surveyed and different methods are used (FRIS-ERM-S). * Excludes Rob Roy and Vaghena islands (approximately 15,500 ha (Source: MFEC 1995 in Pauku 2009).*

INTRASPECIFIC VARIATION STUDIES

There have never been any studies conducted in the SI on intraspecific variation of the FGR apart from the inventory on commercial forest and vegetation classification. Unless there is genetic data available on isolated and endangered FGR, appropriate understanding and improvement of intraspecific variation on FGR cannot be established.
SI lack qualified taxonomist expertise to implement such studies. Proper specific and relevant training is needed to enhance assessments and monitoring of intraspecific variation on FGR in SI.

THE MAIN VALUE OF FOREST GENETIC RESOURCES

Forests and trees are important in Solomon Islands for several reasons:

- they provide habitats for endemic animals, especially the entomofauna, herpetofauna and avifauna;
- they supply resources of wood for local and industrial purposes;
- they provide plants and substances for medicine, food, etc;
- they protect soils, water systems and landscapes against fires, tropical rains, etc;
- they provide hunting and fishing;
- they help maintain Melanesian culture (ancestors, cemeteries, tales and legends); and
- they are host to great biological diversity

Land and forest genetic resources are central in traditional cultural life, being a parallel fabric to the population of human life itself, and forming the most valuable heritage of the whole community- saturated with spiritual, historical and political significance. It provides links with ancestors and spirits and source of power (economic and political).

MAIN FOREST TREE SPECIES ACTIVELY MANAGED FOR PRODUCTIVE AIMS

The main forest tree species currently managed by the Forestry department is confine mainly on species of high economic value in forest plantation such as; *Gmelina arborea, Tectona grandis, Swietenia macrophylla, Eucalyptus deglupta*. Most of these species are planted in forest plantations specifically for timber and pulp and is relatively important for generating income. Other high value native species grow naturally in their natural habitat such as; *Pometia pinate*, *Calophyllum kajewskii*, *Pterocarpus indicus*, *vitex coffasus, Instia bijuga* and other durable native species, there is limited work to actively manage these species for productive aims.

THREATENED AND ENDEMIC SPECIES.

The Solomon Islands rain forest eco-region is included in the global 200 list and ranked in the highest category of “globally outstanding.” Solomon Islands forest vegetation comprises at least 4,500 species of plants (PHCG, 2008) of which 3,200 species are known to be native on indigenous, of these, 16 species are listed as threatened under IUCN red data criteria, several tree species, including ebony, Xanthostemon, rosewood, rattan and some palms are found to be threatened; ebony is listed as critically endangered. Terrestrial invasive flora species are not well documented, nevertheless, there are examples of introduced species threatening the biodiversity of Solomon islands as they tend to be competitive than indigenous plant species. The status of many other forest plants is still unknown. The greatest number is in Guadalcanal and Choiseul Islands. Though the Red list provides the most up-to-date collated information for Solomon Islands, however according to IUCN this analysis indicates that knowledge and information on the biodiversity of Solomon Islands is generally either limited in accuracy and

scope, out of date, or poorly documented. But regardless of that, from general forest inventories, other major commercial species listed in ***annex 1*** have sufficient information to determine whether or not they are threatened.

The non-wood timber trees and endemic timber plants to Solomon Islands include 63 species trees with export quality and 145 species of local construction timber tree. The endemic plants in Solomon islands with custom uses includes 79 firewood plant species, 33 species of rope plants, 58 useful wood species, 35 species of plants with useful leaves, 29 plant species use for handicrafts, 105 miscellaneous species (for decoration), 159 ornamental plant species and 140 local medicinal plants. These plants are significant for the livelihood of the people of Solomon Islands that must be sustained especially when population pressure directly affects the sustainability of the remaining forest. Table 6 provides a summary of the main tree species providing environmental, economic and social benefits. Summary description of common tree species currently used can be seen in ***Annex2*.**

TABLE 6: MAIN TREE AND OTHER WOODY FOREST SPECIES PROVIDING ENVIRONMENTAL SERVICES AND SOCIAL VALUES.

Uses	Estimated total species	Status
Food Plants	218	Includes fruit trees, edible foliage plants, nuts, herb/spice, and traditional plants
Construction, Timber, fuel wood and custom uses	575	Plants use for timber, local construction, boat construction, burning wood
Medicine plants	140	Local medicinal plants
Agricultural Plants	340	Plants suitable for nutrient cycling, much, soil protection, pastures and plants known for pesticidal properties
Ornamental	159	Plants use for ornamental purposes
Custom uses	260	Plants use for house building, ropes for local construction, carved, mats, baskets, hats dyes, decoration, custom clothing and fish poisoning.

Source (Henderson et at, 1988)

DOCUMENTED FOREST TREE SPECIES PRIORITY SETTING

At present, there is no regional resource documenting which species exist and/or threatened in Solomon Islands. Data is often dispersed, taxonomist expert is absent, and nomenclature and classification systems often disputed for various species. In 2004, a survey was conducted on a local species (*Xanthostermon* sp) known to be rare and found only in certain parts of the country, this survey was made possible with the assistance of the south pacific regional initiative on forest genetic resources aimed at developing a conservation and sustainable management strategy for the tree species. *Xanthostemon* sp. is rare tree species, which had almost a pure stands on a particular kind of igneous rock known to geologists as ultra-basic. Studies confirm that this species is found mainly on South Isabel Island, San George Island on Santa Isabel province and South East Choiseul on Choiseul province. To-date there is no actual ground work done on this species, though, recommendations from the study seriously considered;

Collaboration with resource owners for conservation of the species through;

- Establishment of demonstration plots
- Collection of seed and specimens
- Establishment of family trial & provenance
- Establishment of natural regeneration plots.

THE STATE OF GENETIC DIVERSITY FOR MAIN SPECIES

There are high levels of species diversity and endemism in Solomon Islands. It is the best example in the world of speciation and population variation among islands more than the Galapagos Island (CBD, 2006). Many scattered islands are considered biodiversity "hotpots". Solomon Islands rely heavily on these biological resources for economic, social and cultural wellbeing. The genetic diversity is under threat from a range of sources. Large scale and destructive industrial logging has resulted in widespread forest degradation. Extensive industrial logging, plantations and subsistence farming have made land degradation a major issue. Serious erosion, siltation and declining soil quality threatened species diversity. As the population increases, so too do the pressures from subsistence uses. Over-harvesting, steep slope farming and reduced rotation periods are just some of the current patterns of resource usage. The state of genetic diversity for the main species in Solomon Islands remains at threat unless accurate assessments are made to identify species diversity and associated threats, environmental management decisions cannot be made at this point in time.

FACTORS INFLUENCING THE STATE OF FOREST GENETIC DIVERSITY

Although there are no precise figures to quantify genetic erosion, it is believed to be widespread in the country. Current extensive land use and land use change are proof for this. There is an overall consensus that the major factors causing genetic erosion in the country is as follows; *Replacement of local varieties, land clearing, pests/weeds/diseases, population pressure and changing agricultural systems.*

There is very limited studies and knowledge on threatened species as well as monitoring of genetic erosion and vulnerability and as such, preventing and correction of genetic erosion and vulnerability cannot be established. Therefore, it is an urgent need for the country to consider policy tools and instruments that must be made to address genetic erosion and vulnerability as well as undertake risk disaster analysis and establish a frame work for forest genetic resources recuperation. Lack of quality and detailed information on forest genetic resources (FGR) in SI makes it impossible to establish effective FGR disaster responses mechanism after natural disasters.

THREATS TO FOREST GENETIC RESOURCES

Threats: The major threats identified to FGR in SI are; logging, inappropriate land use practices and over exploitation of natural resources compound by; natural disasters, population increase, invasive species, pollution and climate change. The resulting impacts are anticipated to be loss of habitats, extinction of species and degraded ecosystem .**Annex 3** summed up priority environmental issues associated with the state of genetic resources.

The most serious threats to forest genetic resources are as follows;

- Unsustainable logging practices
- land clearing for agriculture and village expansion
- unsuitable timber and fuel wood extraction practices
- introduction and existence of exotic and invasive species
- lack of forest management practices
- poor participation of local communities in forest management
- Limitation of knowledge based on Research Documentation
- Lack of appropriate legislation

While most agree that the creation of a conservation estate would be in the national interest, there is no functioning institutional framework for its advocacy, creation or management. Even if such a framework existed, then there would be problems in funding it. For these reasons none of the conservation areas identified by SOLFRIP have been reserved and in fact many have already been logged. Under the current land tenure system it seems unlikely that this will change in either the short or medium term.

FUTURE NEEDS AND PRIORITIES

In SI, there are currently no systems in place to monitor and report on genetic erosion, neither *in situ* nor *ex situ*. The main constrains to monitoring genetic erosion are lack of skilled personnel, lack of appropriate and easy to apply methodologies and lack of financial resources. The major constrains to addressing threats to FGR in the SI are lack of sufficient financial support, insufficient institutional capacity, conflicts generated by the system of land tenure and land use e.g. mining verses conservation of *Xanthostemon* sp, lack of effective and consistent awareness campaigns, insufficient and weak legislation and political instability. There is an urgent need to strengthen institutional capacity at different levels of government for promoting effective management of FGR.

In order to make informed decisions to deal with these challenges, a sound knowledge of species found in the country and information on their conservation status and distribution is needed. A growing number of national and international conventions and agreements now exist, concerned with conserving biodiversity, preserving wetlands and migratory species, and regulating trade in endangered species. Government and decision makers need reliable and quality information on the status of biodiversity, in order to work together to meet targets set by these agreements and ultimately stem the extinction crisis (IUCN Red list Report, 2008)

CURRENT STATE OF FOREST PRODUCTIVE MATERIAL

VEGETATIVE PROPAGATION:

From 1984 to 1987 considerable effort was put into exploring the potential for the mass production of *Gmelina arborea* using vegetative propagation techniques. While vegetative propagation work in the Solomon Islands concentrated on *Gmelina arborea*, techniques were also explored with three native species: *Gmelina moluccana, Pometia pinate* and *Endospermum medullosum.* Various grafting techniques, such as shield budding and patch budding have also been used in the tree improvement program and more recently, techniques have been tested on other species in the programme, such as, *Tectona grandis, Swietenia macrophylla* and *Eucalyptus deglupta.*

SEED COLLECTING AND HANDLING

In 1981, safety measures on high climbing techniques using climbing spurs, a body harness and safety ropes were used for the first time in seed collection of fresh seed in the Forestry Division. This technique is particularly appropriate for tree species of considerable height exceeding 10 meters, the following species are examples: *SWIM, CEDO, TERB, TERCAL* and *TECG*. Previously these techniques had only been used in Santa Cruz to collect *AGAM* seed. At the present time, standard procedures for seed collection and processing for all major species were being adopted and resulted in improved seed quality and quantities being available to users. Seed collection from improved seed sources of plantation species is presented in Table 7a whilst table 7b, shows the annual number of seedlings planted

TABLE 7A: ANNUAL QUANTITY OF SEED PRODUCED AND CURRENT STATE OF IDENTIFICATION OF FOREST PRODUCTIVE MATERIAL OF THE MAIN FOREST TREE AND OTHER WOODY SPECIES.

Species		Total Quantity of seed used (Kg)	Quantity of seeds from documented sources(Provenance & seed zones delaminated)	Quantity of seeds from tested provenances (Trials established & Evaluated	Quantity that is genetically improved (from seed orchards
Scientific Name	Native (N) or Exotic (E)				

Tectona grandis	E	-	1500 kg	200-300 kg	192.5kg
Swietenia macrophylla	E	-	200 kg	-	-
Eucalyptus deglupta	E	-	2.0 kg	-	-

Source: Ministry of Forest & Research

TABLE 7B: ANNUAL NUMBER OF SEEDLINGS (OR VEGETATIVE PROPAGULES) PLANTED & THE STATE OF IDENTIFICATION OF THE PRODUCTIVE MATERIAL FOR THE MAIN FOREST TREE & OTHER WOODY SPECIES.

Species		Total Quantity of seeds planted (Kg)	Quantity of seedlings from documented sources(Provenance & seed zones delaminated)	Quantity of seedlings from tested provenances (Trials established & Evaluated	Quantity seedlings that are genetically improved
Scientific Name	Native (N) or Exotic (E)				
Tectona grandis	E	765	700,000	311,500	119,000
Swietenia macrophylla	E	248	248,000	nil	nil
Eucalyptus	E	1.0	119,500	nil	nil

Source: Ministry of Forest & Research

CHAPTER 2

THE STATE OF *IN SITU* GENETIC CONSERVATION

There has been little effort to ensure *in situ* conservation of forest genetic resources in the past in the forestry sector. The Honiara botanical gardens contains a number of local plants but has been hugely under threat and slightly degraded. It is however remains intact and the Ministry of Forest & Research through the national herbarium and Botanical gardens division is currently managing the site. The management is currently working on upgrading and improving the botanical gardens as this is the only reserve area in Honiara.
The UN Convention on Biological Diversity on in situ conservation requires parties to establish and maintain a system of protected areas aimed at conserving significant habitat and ecosystems, to regulate land use around protected areas in order to preserve the integrity of the area, and restore degraded areas of conservation importance and control the introduction and spread of alien invasive species. They should also implement a system of environmental impact assessment to prevent or minimize harm to BD arising from development activities.

Currently, Solomon Island two formal protected areas, Queen Elizabeth Park which is largely degraded is 1093ha and east Rennell World Heritage site is 37,000ha. There also exist conservation areas without formal protection and this includes Tetepare Conservation area, Makira Conservation area, Komarindi catchment area and Anavon Conservation Area. These sites have some degree of control by communities to protect from clearing hence contain some diverse native plant species.

Article 8 of the United Nations Convention on Biological Diversity (quoted from stock report for Solomon Islands 2006) requires parties to;

- Establish a system of protected areas
- Develop guidelines for selection & management of protected areas
- Regulate or manage biological resources for conservation and sustainable use
- Promote protection systems, natural habitats and viable populations in nature
- Promote environmentally sound and sustainable development adjacent to protected areas
- Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species
- Regulate, manage or control the risk of use/release of biotechnology organisms
- Prevent introduction of, control or eradicate alien species
- Compatibility between present uses and the conservation of BD & sustainable use of its component
- Indigenous knowledge
- Develop legal regime for threatened species protection
- Regulate and manage threatening processes/activities
- Co-op in providing financial support
- Adopt economically and socially sound incentives for *in situ* conservation

However, with one of the fastest growing populations on the globe, and little economic alternative to escalating mining and timber industries, pressure on the diverse land and seascapes of this tropical region is immense. At present, there are no formal protected areas in the Solomon Islands. Land use is determined by holders of customary rights to the land, namely individuals within local communities.. Extractive industry has exploited this situation and the result has been startling increases in large-scale logging. If the remarkable FGR biodiversity of the Solomon's is to survive and continue to inspire and sustain human communities, a national protected areas strategy, including immediate land use alternatives to large-scale foreign resource extraction, is imperative.

January 1, 2012

FOREST GENETIC RESOURCES INVENTORIES AND SURVEYS

Major forest surveys were done in the past- by Solomon Islands Forest Resource Inventory survey (SOLFRIS) in 1990 and the Solomon Islands National Forest Resource Assessment update in 2006. The review of this update is currently in progress. These assessments were based mainly on the natural and plantation forest resources in the Solomon Islands (commercial forest supply) and not to the extend so as to identify other forest ecosystems that are of significant importance for conservation, management or protection nor constitute a comprehensive botanical survey of the kind contemplated in the NEMS.

CONSERVATION OF FOREST GENETIC RESOURCES WITHIN AND OUTSIDE PROTECTED AREAS

There is no national law dealing with the establishment or management of protected areas. For over a decade, the establishment of a system of protected areas has been a state priority of the SIG (NEMS 1993). Many reasons are cited for the slow progress toward this goal, including funding limitations and the constraints imposed by customary tenure.

The Solomon Islands Code of Logging Practice (COLP) allows for the areas set aside for conservation purposes, but specifically provides that these must be set aside under discrete legislation. There is no provision in the COLP itself for establishing protected areas. The Forestry legislation allows for the establishment of protected areas for watershed management but again this has been undermine by customary tenure.

ECOSYSTEM MANAGEMENT FOR FOREST GENETIC RESOURCES CONSERVATION WITHIN AND OUTSIDE PROTECTED AREAS.

Although no specific targets have been made to conserve threatened species *in situ*, the forestry division has identified a particular species *Xanthostemon* sp for this particular conservation due to its limited regional distribution in the country. Natural forest conservation programs have been more specific to the Environment Act 1998 an Act to make provision for protection and conservation of the environment. The Act provides for an integrated system of development control, environmental impact assessment (EIA) and pollution control.

CONSTRAINS TO IMPROVE *IN SITU* CONSERVATION

The influence of customary forms of land ownership in Solomon Islands profoundly affects the power of the state. More than 85% of the population still lives in rural villages, their livelihoods predominantly supported by subsistence gardening and fishing activity on customary land. Government officers seldom visited communities thus; village life is normally dictated by church, tribal leaders and the need to farm the land, fish the sea, care for family members and maintain their home. Sea and land resources are owned by the people including the forest therefore, they have the right to exploit these resources with limited concern for any *in situ* activities. This poses a challenge for policy and legal interventions aimed at promoting *in situ* forest genetic conservations.

Yet member's activities are still limited to specific sites and are led by the interests and priorities of individual member organizations, often control in head offices overseas. They are not coordinated or guided by national strategies partly because appropriate policy directives are yet to be formulated by relevant government departments.

PROGRAM FOR *IN SITU* CONSERVATION OF FOREST GENETIC RESOURCES

Currently, support for local community resource management initiatives is provided by non-government organizations or financial and technical support from externally funded projects such as;

- Marovo –Tetepare Descendants Association (Marovo Lagoon, Tetepare.,Hele Is, S W Rendova &Mborokua Island) - mixed natural and cultural site
- Arnavon Region (Arnavon Island, part of South Choiseul &Santa Isabel) – also a mixed natural and cultural site
- Bauro Highlands & Three Sisters Complex (Makira) and/or Mt Maetambe, Choiseul – serial submission for natural site
- Kolombangara-KFPL- Reserve area of 2,762 hectares, KBA, 11,650 hectares kept aside (400m A.S.L) for research purposes. 5 hectares of wetland area allocated for conservation and 25 hectares of steep land protected (>30◦slope).
- University of Queensland project in Western Province
- Makira Highland Conservation Area

DEVELOPMENT PROJECTS

In addition to these NGO- led initiatives, a number of donor funded projects – both past and present- have focused on BD conservation, including;

- The UNDP-GEF South Pacific Biodiversity Conservation Project
- An EU-Funded Forestry Project in Santa Isabel

MAIN CONSTRAINS TO IMPROVING *IN SITU* GENETIC CONSERVATION PROGRAMMES

To date, no steps have been made towards accounting for *in situ* conservation. Budget allocation to forest conservation activities and to provinces remains very low. The immediate priorities of several major donors are focused more on economic rebuilding, law and order, and health and education. The majority of conservation funding comes from project work, which profoundly limits its long-term potential.

Initiative to conserve biodiversity in *in situ* requires commitment and cooperation from a range of stakeholders such as customary land owners, NGO's and the Government.

Lack of political support, lack of appropriate policies and laws, inadequate capacity, lack of adequate scientific research capacities; lack of accessible knowledge and information; lack of financial, human and technical resources; lack of synergies at national level; lack of capacities for local communities, lack of effective partnership; natural disasters and environmental change; and unsustainable consumption patterns are major issues to be addressed

SPECIES THAT ARE CONSERVED ON-FARM

Conservation of trees of agro-forestry significance has been given less consideration in the Research programs. The large scale reforestation programs in the SI concentrated mainly on high value plantation species so as the small scale reforestation program currently implemented at national level. Few indigenous species on research trial plots has not generated sufficient data and were confined mainly on trial basis rather than in circa-situ.

The Ministry of Agriculture and Livestock, through its research division, has identified it as a priority to re-establish its research center to find means of addressing food and nutrition security. Of importance to this strategy is the development of new crops and technologies to ensure particular crops are not heavily exploited for food, and for

planting materials to be bulked up at research field stations and on *circa- situ* to supplement future agricultural developments. The Kastom gaden association also has its gene bank at seed saving centers in the country.

PRIORITIES FOR FUTURE *IN SITU* CONSERVATION ACTIONS

In synthesis, efforts to support *in situ* management of FGR in Solomon Islands at present are insufficient and need to be improved particularly with regard to the assistance to farmers for FGR on farm management and improvement. International collaboration *in situ* programs must be strengthened, as it does not receive adequate consideration and support at national level.

CHAPTER 3

THE STATE OF *EX- SITU* GENETIC CONSERVATION

Article 9 of the United Nations Convention on biological diversity, quoted in stock stake report for Solomon Islands (2006) requires parties (Solomon islands is a party) to promote *ex-situ* conservation through;

- Adopt measures for ex-situ conservation
- Establish and maintain facilities for ex-situ conservation
- Adopt measures for the recovery and rehabilitation of threatened species
- Regulate and manage collection of biological resources from natural habitats for *ex situ* conservation so as not to threatened ecosystems and *in situ* populations
- Cooperate in providing financial support for *ex-situ* conservation.

The Honiara National Herbarium which is managed by the Ministry of Forest and Research stored more than 30,000 plant specimens, during the civil unrest, all of the plant specimen stored in the Herbarium were transferred to Fiji for safe storage and yet to be returned to the country, currently work on the rehabilitation and upgrading of the Herbarium building is still underway.

Several agencies has a potential role in achieving *ex situ* conservation, the Ministry of Forest & Research, the Ministry of Environment, conservation and meteorology and the Ministry of Agriculture and Livestock retains the overall responsibility, especially in the absence of designated alternative, such as a national zoo or research facility.

The Dodo Creek Agriculture research station was destroyed during the 1999-2000 civil conflict. Before the actual burning of the whole station, many specimens were sent overseas for storage but many others, including seed stock were lost.

There is no national strategy, policy, funding, nor any national facilities for the housing of *ex situ*. No institution has been given responsibility for *ex situ* conservation and there is limited knowledge of what specimens are held elsewhere. There was no concrete and effective *ex-situ* conservation programs develop at National level in the past and must be considered now if the endangered species are going to be protected from total extinction.

Constrains to *ex-situ* programs were merely that resource owners were not properly informed on the status of the endangered species and the importance of protecting those species this may result in resource owners declining any attempt from the SIG or NGO's to establish such programs. Also the successive governments placed least priority in such undertaken hence lack of proper strategies were in place to improve or actively involved in *ex situ* conservation programs.

The priority action now is to assess the current state of endangered species and develop a framework that will promote effective implementation of *ex-situ* conservation. Allocation of adequate funds through the Ministry of Forest and Research and other Departments to start the planning process of implementing *ex- situ* programs and also encourage non- government agencies to start incorporating such programs with communities with whom they affiliated. An example of such is the current genetic conservation work on *Canarium Indicum* initiated by the Land resource division of SPC with the communities of Nukiki in Choiseul and Tasimboko on Guadalcanal province.

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THE STATE OF COLLECTION

The Ministry of Forest and Research engaged in joint research expedition conducted by Dr. John. R. Clark from Marie Selby Botanical garden (MSBG USA) and Dr. Takashi Watanabe from Makino Botanical prefecture (MBK Japan).

The two international researchers work in partnership with the Ministry of Forest and Research after signing the memorandum of Agreement (MOA) in 2007.

The objectives of the MBK Research Expeditions

- Academic purpose (to contribute to existing knowledge of SI Flora and global scientific community).
- To prove through chemical analysis the potentials for product development (economic botany) particularly on medicinal plants.
- Ethno-Botany (local uses and names)- indigenous knowledge and use of plants
- Enrich Herbarium with voucher specimens for reference and future educational and research needs and to update and ensure specimens bare their correct names with determinations from other Herbaria and specialists.
- Staff training exposure to increase level of skills, knowledge and capabilities
- Part of the Ministry's research partnership support programs.

Collection of medicinal plants and other useful plants under this joint program was done on various Islands in the Solomon Islands namely; *Malaita*, *Guadalcanal*, *Choisuel*, *VonaVona, Rennel*, *Isabel*, *Tetepari, New Georgia*, *Savo* and *Pavuvu*. A total of 990 plants were collected and were send to Japan for chemical analysis and identification. Table 8 list summary of collections.

TABLE 8: SUMMARY OF COLLECTION

Expedition	Period	Total Collection	Collection sites
1	Sept-Nov 2007	95	Guadalcanal , Malaita
2	July-Aug 2008	363	Guadalcanal, New Georgia, Tetepare, Kolombangara,.Vellalavela, Gizo
3	Dec-Feb, 2008/2009	250	Malaita, Guadalcanal, Choisuel, Rarumana and Rennel.
4	July-Aug 2009	450	Guadalcanal, Rennel, Malaita, Tetepare and Isabel
5	Dec-Jan 2990/2010	165	Guadalcanal, Savo, Ngella, Russel Islands.

Source: Ministry of Forest & Research

RESEARCH EXPEDITIONS WITH MARIE SELBY BOTANICAL GARDEN (MSBG USA)

Marie Selby Botanical garden (MSBG) is a Gesneriad Research Center in USA that conducted a Joint research with the SI- National Herbarium and Botanical Garden on the dispersal and diversification of the plant family Gesneriaceae in the Solomon Islands. Thus, the research expedition is part of the South East Asia and Pacific Bioregion Botanical, Phyto-georgraphical and Environmental studies which focused on the distribution and diversification of the genera *Cyrtandra* (Gesneriaceae family). The expedition was coordinated by Dr. John R. Clark from USA. Table 9 detailed the collection under this joint expedition.

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The Objective of the research Expeditions with MSBG USA**.**

- To determine the distribution and diversification of *Cyrtandra*- Biogeography and geographical relationships.
- Part of Forest assessment and Environmental monitoring- measure of habitat destruction and
- Part of the ongoing effort to develop Research partnership globally

TABLE 9: SUMMARY OF CYRTANDRA COLLECTION

Islands	Collection ID	No. of individuals	Family		Genera		No. of duplicates	Living samples
			Known	unknown	known	unknown		
Isabel	JRC 721-767	47	6	4	9	4	97	8
Kolombangara	JRC 768-795	28	3		5	11	87	10
Vangunu	JRC 796-809	14	2		2	2	32	9
	Total	**89**	**11**	**4**	**16**	**17**	**216**	**27**

Source: Ministry of Forest & Research

The choice of the particular genera to justify the scientific significance of such research in SI is that *Cyrtandra* has a wide distribution range and highly diversified through S.E. Asia through New Guinea mainland and continue towards the pacific smaller Islands up to Hawaii. Thus this phenomenon can be able to explain phyto-geography and other geographical relationships between the different islands and continental land masses in the region and globally. Ecologically, the occurrence of the genera *Cyrtandra* in a particular forest indicates the degree of intactness of forest therefore one of the species which can be used as a measure of environmental or habitat disturbance and is essential in areas of environmental monitoring.

MAIN CONSTRAINS TO IMPROVE *EX SITU* CONSERVATION

In Solomon Islands, there is a strong interrelationship between society, economy and environment. The people's livelihoods and national economy are directly dependent on resources and processes within the environment. As a society heavily reliant on natural materials extraction for local consumption or export, and dependent on environmental processes for livelihoods, the environment is both critical to growth and development, and directly impacted the effects of the same. In the process of exploiting resources, reduction in stock levels and degradation in habitat integrity and carrying capacity are experienced. This is driven both by scale of activity and the methods utilized for these activities. As the population grows, the need for greater use of resources grows and in turn, the more pressure is put on the resource base. It is therefore fundamentally important for governments and civil society to understand the relationship between the economy and the environment, how people and the economy have changed over time, and how they may change in the future in relation to the environment. Conservation of Forest genetic resources has not been considered important by resource owners hence least prioritized in rural setting.

PRIORITIES FOR FUTURE *EX SITU* CONSERVATION ACTIONS (RESEARCH, CAPACITY BUILDING)

Although no formal programs and frameworks are in place, certain key areas needs to be addressed such as; solicit political support, facilitate appropriate policies and laws, enhance capacity building, identify adequate scientific research capacities, request funding, allocate human and technical resources, community awareness, effective partnership and horizontal cooperation among stakeholders.

Some important lessons learnt from previous works revealed the type of capacity building that is needed. The livelihood, complexities of customary land tenure and use rights means that protected areas can only be achieved through sustainable resource management approaches in which people's needs have to be addressed.

Proper mainstreaming of forest genetic resources considerations into economic and social planning are the best methods of ensuring *in situ* conservation.

TARGET *EX SITU* FOREST SPECIES

The Forestry division in collaboration with SPRIG have identified and targeted few species for *ex situ* activities such as *Canarium Indicum,Pterocarpus Indicus*, *Xanthostemon*,,Gmelina *Moluccana,Vitex cofassus,Terminalia catappa*,*Cordia subcordata,Flueggea flexuosa,Paraserianthes falcateria*,, *Intsia bijuga* and *Melonoxylon.,* These species were established on trial basis and are currently managed by the Forestry Division.

CHAPTER 4

THE STATE OF USE AND SUSTAINABLE MANAGEMENT OF FOREST GENETIC RESOURCES.

The approximate 88% of the total land mass of Solomon Islands is under forest cover, and the majority of this forested land mass is under customary ownership. The use of Forest and its resources is subjected to exploitation as most forest owners have not considered or engaged in forest protection and management of valuable forest genetic resources. The land and forest as a common tribal property has been used mainly for subsistence farming practices and in most provinces, timber rights were given to logging investors for large scale logging activities this resulted in most forest areas pushed further in land. Most households in the Solomon Islands depend entirely on subsistence farming for daily sustenance and surplus sold to local markets to subsidize costs of living. The slush and burn method of farming is commonly practiced which directly results in more forest areas cleared. In dense populated areas in the Solomon Islands, this is the single means of clearing large areas of primary forest. Forest areas that are cleared are permanently lost as well as diverse forest species therein.

Solomon Islanders used the forest in so many ways, according to the statistic report (2009) of the 91,251 households surveyed; 35,115 households use forest materials for walls, 56,374 households use forest materials for flooring, 55,664 for roofing and 84,420 households use forest products for cooking. This dependency on forest products will escalate in the future with the growing population and will pose a threat to the forest resources in the country.

GENETIC IMPROVEMENT PROGRAMS AND THEIR IMPLEMENTATION

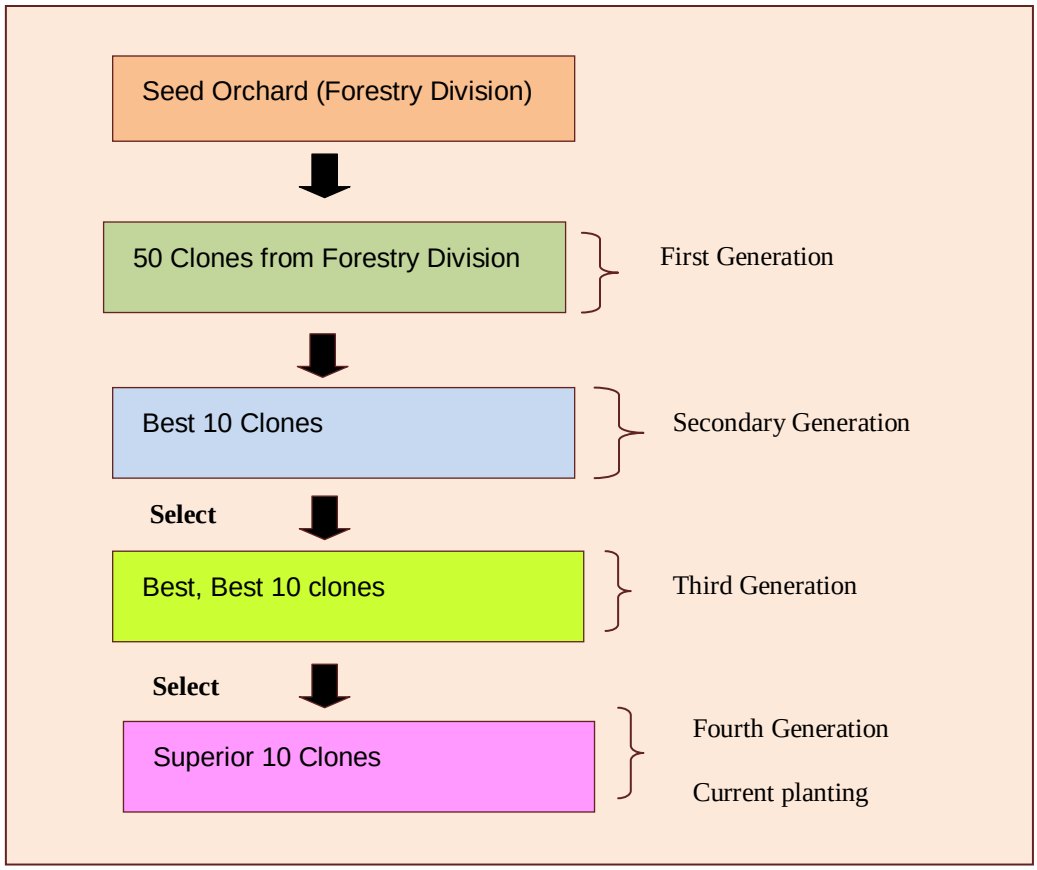
The MoF&R of the Solomon Islands has been establishing trials to evaluate forest species since 1956. TECG and SWIM were some of the early successful introductions. Further accessions including *EUCD* were planted by both research and the plantation sections. Plantation section records are not complete in that the seed source of trial material is often known but not the provenance. Moreover, research records, which are reasonably complete in keeping track of first, second and third generation open pollinated seed collections and their disbursement, still lack provenance information. It is the seed collected from the early plantings and then from subsequent plantings that now form the Solomon Island landraces. Genetic diversity of the landraces is largely unknown but, given the range of early introductions, it may be better than assumed.

A mild form of genetic improvement for selected species has occurred over the years with planted stands being thinned to the best trees for seed production in some cases and seed being collected from the better trees in other cases (Gua pers. Comm.). No evidence was found indicating attempts to collect seed from a wide range of sources, mixing the seed and planting a stand of mixed material in an attempt to broaden the gene pool and produce a seed production area. Since the total number of parents contributing to the original collections is unknown, and subsequent collections made from an even smaller number of trees, of which many may be related, determining the genetic diversity of the landrace should be a high priority. (URS Report)

An attempt to genetically improve teak and mahogany was initiated in 1990 but that apparently did not progress. In 1997 KFPL contracted R. Barnes from Oxford Forestry Institute to write breeding strategies for *GMEA, EUCD* and *TECG* .Apparently the teak strategy was not written but KFPL did implement the strategy for the *Gmelina arborea* (**Box 1**) but little appears to have been done on the *EUCD* Overall, more work appears to have been invested in TECG than mahogany and *EUCD* probably because the quality of the mahogany seed from the Mt

Austen seed production area and the Bulolo source of *EUCD* was considered acceptable. With all species, seed collections have been re-established as second and third generation (URS Report).

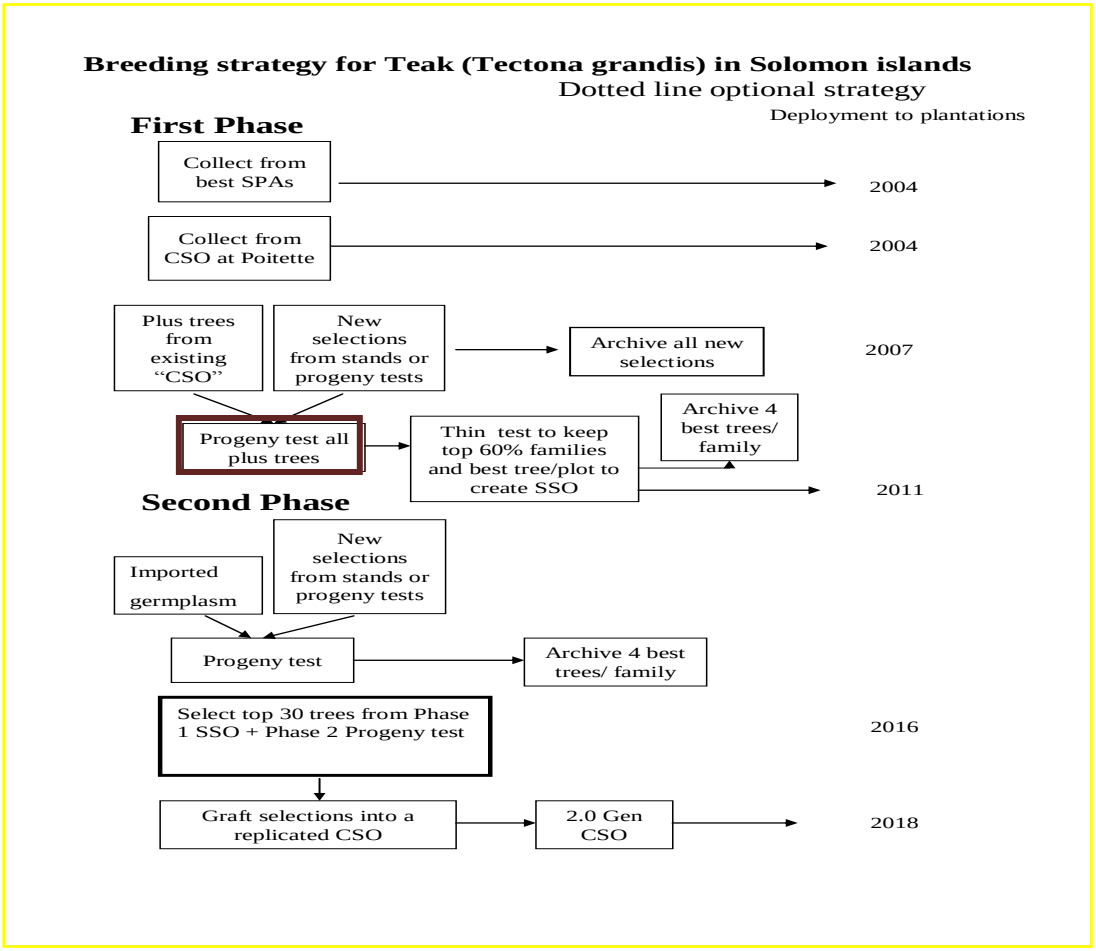
GMEA- Tree Improvement Strategy by KFPL



BOX 1: SOURCE: KFPL

TREE IMPROVEMENT

A formal tree improvement programme was initiated in 1988 with *GMEA, TECG, EUCD, SWIM CEDO* and *TERB*. This improvement program was based on a series of consultancies as well as work on seed stands (SS), seedling seed production areas (SSPA) and 'plus' trees initiated within the FD in 1983. The FD and KFPL have given *GMEA* overall priority in the improvement program. Tree improvement work on this species was initiated by Forestry Division and later undertaken by KFPL. Currently KFPL have develop the best clones to "superior 10 clones "to superior clones whilst the MoF&R concentrated mainly on *TECG, EUCD* and SWIM in particular *TECG*, which at present time work is on progeny test all plus trees. (Refer to diagram below)



BOX 2: SOURCE: URS, 2006

TABLE 10: LIST OF FORESTRY TEAK SEED SOURCES ON KOLOMBANGARA ISLAND IN THE WESTERN PROVINCE.

Type	*Name*	*Road*	*Year*	*Kg/yr*	*Provenance*	*Country*	*origin*	*Note*
CA	Clonal achieve	L38	1993	***500***	West	Solomon	Asia	41 tress left-tested
SPA	Seed Yield trial	L39	1978	1500	Mt.Austern	Guadalcanal	India	250 trees left-tested
PSS	Spacing Trial	L38-39	1987		Mt.Austern	Guadalcanal	India	Replicated at Eagon
SSO		L44	2004	500	CSO L38	Solomon		Very high potential
SPA	Provenance trial	L40	2000	1000	Various	Solomon	Thailand, India, Nigeria	Eliminate 5 bad proven

Source: Ministry of Forest and Research

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CURRENT STATUS OF TREE IMPROVEMENT AND BREEDING PROGRAMS

In 1992 the former research officer Basil Gua independently searched all teak stands belonging to MoF&R and KFPL on Kolombangara Island and grafted the 50 best selections into a non-replicated seed orchard in 1993. Seed from this clonal orchard is currently being planted in the extension program where families within clans are being encouraged to plant small plots of teak and mahogany in areas that have been logged over heavily or old garden sites. Growth observed in plantings up to two years old is spectacular with trees reaching heights of 8-10 metres and having very straight stems with minimal branching.

In the late 90's KFPL indicated interest in improving teak and introduced new seed sources to complement those already introduced by the Forestry Department including seed from a Thailand CSO which was organized by Doug Boland (Commonwealth Scientific and Industrial Research Organization (CSIRO) / South Pacific Regional Initiative for Genetic resources (SPRIG). Only in 2000 was a provenance/progeny test established to evaluate seed sources being collected and to provide a source of material for further selections. Unfortunately no seed was collected from the individual families grafted into the CSO for progeny testing and it is not certain how many of the original parent trees are still standing (Gua pers comm.). The FD/SPRIG teak progeny test was planted in 2/2000 L40 Poitete) at a spacing of 2.5 m between rows x 2.5 m between trees with 10 tree plots. It has 10 treatments in 18 reps. Trial was measured before being thinned by 50% from below in April 2003. Trees have good form and strong apical dominance. It is being considered as a potential seed production area.

SWIM

First introduced to the Solomon's in 1957 and planted in trial plots on Santa Cruz in 1958, it was not planted as a plantation crop until 1978. By 1989 over 3,000 ha had been established as plantations on Santa Cruz, Viru, Shortlands and Kolombangara as well as some 50 trial plots throughout the Solomon Islands A trial planting at Mt Austen was thinned to form a seed production area. It was seed from this planting that was used in the first plantation in 1978. The seed being sown, both imported from Fiji and local, was obviously producing trees of acceptable form and growth and it would seem that both the MoF&R and KFPL saw no real need to initiate a tree improvement of their own. This was unfortunate as SPRIG trials (2000-2004), planted in collaboration with the respective Forestry Departments in Vanuatu, Fiji and Samoa, have all shown that Fijian 'land race' mahogany grows more slowly than the best native provenances: Sandiford in 1990 completed a summary of resources planted by the MoF&R as a first step to initiate an improvement programme but this was not followed through. Forestry Division is currently maintaining the mahogany progeny trial established by Spencer in 2006. **Annex 4 presents tree improvement strategy for SWIM.**

EUCD

It is evident that genetic improvement of *E. deglupta* has not been considered a priority or necessity. This is validated to some extent by the fact that KFPL contracted R Barnes in 1997 to develop a strategy but did not seriously follow through for whatever reasons. Outstanding individual trees had been selected in the early plantings on L52 and other nearby roads (1973-1976) and were retained at clear felling One measured 126cm DBH; 36m Ht in Dec 2007. Advised that there were 8-10 trees selected and retained but this needs confirmation. Tree improvement strategy for **EUCD can be seen in annex 5.** *Eucalyptus deglupta* is of interest to EAGON and KFPL but not the Forest Division of Solomon Islands. Almost all plantings are located on their respective lands. After an improvement strategy had been written for KFPL by R. Barnes in 1997, some sixty plus trees were selected and marked on Kolombangara but these trees have not been propagated nor seed collected from them for progeny testing. This tree species has now become widely planted by out growers on small scale basis along with SWIM and TECG.

SEED PRODUCTION

Current seed production is aimed at supplementing industrial plantations established by KFPL, EPPL and the small scale out growers reforestation program, very limited seeds of *TECG* and *Paraserianthes falcateria* were exported or transferred internationally. Isolated international transfer of *TECG* and *Paraserianthes falcateria* in Table 11 were confined mainly on research purposes.

TABLE 11: SEED AND PROPAGULES TRANSFERRED INTERNATIONALLY PER ANNUM (AVERAGE OF LAST 5 YEARS)

Species		Quantity of seed (Kg)		# of Vegetative propagules		# of seedlings		Purpose
Scientific name	Native/Exotic	Import	Export	Import	Export	Import	Export	
Tectona grandis	Exotic	-	119	-	-	-	-	Research
Paraserianthes falcataria	Native	-	10.0	-	-	-	-	Research

Source: Ministry of Forest and Research

SPECIES WHICH ARE PRESENTLY SUBJECT TO TREE IMPROVEMENT PROGRAMMES.

More emphasis on the tree improvement program is on high value forest plantation species such as *TECG, GMEA, SWIM & EUCD*, other local species such as *Canarium indicum*, *Fluegea flexuosa*, *Paranthes falcataria* are also given due consideration. Table 12 indicated some of the targeted exotic and native species for tree improvement program.

TABLE 12: SPECIES TARGETED ON TREE IMPROVEMENT PROGRAM

Species		Improvement program objective					
Scientific name	Native/exotic	Timber	Pulpwood	Energy	MP*	NWFP**	Other
Tectona grandis	Exotic	√					
Eucalyptus deglupta	Exotic	√	√				
Swietenia macrophylla	Exotic	√					
Flueggea flexuosa	Native				√		
Canarium indicum	Native					√	
Paraserianthes falcataria	Native				√		
Gmelina arborea	Exotic		√				
Eucalyptus pellita	Exotic	√	√				

SOURCE: Ministry of Forest and Research

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NUMBER OF PLUS TREES AND GENETIC TEST.

TECG, EUCD and SWIM are in the progeny first stage. GMEA did not go through the progeny test only phenotypic plus tree selection and elimination of poor ones. KFPL has reached the clonal stage (superior clones) with *GMEA*. Table 13 list current state of the major tree improvement species.

TABLE 13: TREE IMPROVEMENT TRIALS

Species		Plus Tree*	Provenance Trials		Progenies		Clonal testing & Development			
Scientific name	Native/Exotic	Number	No. Trials	No. of provenances	No. of Trials	No. Families	No. of tests	No. of clones tested	No. of clones selected	No. of clones used.
Tectona grandis	Exotic				5					
Swietenia macrophylla	Exotic				5					
Eucalyptus deglupta	Exotic				5					
Flueggea flexuosa	Native		1	9						

Source: Ministry of Forest and Research

SUMMARY OF FORESTRY DEPARTMENT/SPRIG FIELD TRIALS AND OUT GROWERS PLANTINGS.

The establishment of trials in the Solomon Islands had several objectives. The principal objective is to address the need for genetic conservation of important commercial species and those that are of social and cultural value to people of Solomon Islands.

Since 2000 the SRIG Project in the Solomon Islands has assisted in establishing a total of 10 trial plots (table 14), and 4 community plantings of the following species; *Rosewood*, *Teak, White Beech, Kerosene wood, Vitex* and *Sea Almond*.

In recent years, much of the planting work has moved to include supporting community/family tree planting both for future income and to reforest areas that have been logged as well as implementing research trials/ conservation stands of priority indigenous species.

TABLE 14: SUMMARY OF SPRIG TRIAL PLOTS

Trial plot	Date planted	Area(ha)	Location	status
Rose wood species trial (*Pterocarpus dalbergiodes, P. indicus, P. macrocarpus)*	14/02/2000	0.288	Road L43, Poitete, Kolombangara, WP	Active
Rose wood Family trial Latinised (*Ptercocarpus indicus)*	14/02/2000	0.743	Road L43, Poitete, Kolombangara, WP	Under review
Rose wood family trial RCB (*Pterocarpus indicus)*	14/02/2000	1.495	Road L43, Poitete, Kolombangara, WP	Under review
Rosewood Gene Conservation	15/02/2000	1.35	Road L43,	Under

Stand (*Pterocarpus dalbergiodes, P. indicus, P. macrocarpus)*			Poitete,Kolombangara, WP	Review
White Beech (*Gmelina moluccana)*	16/02/2000	0.816	Road L43, Poitete, Kolombangara, WP	Active
Vitex (*Vitex cofassus)*	16/02/2000	0.324	Road L43 Poitete, Kolombangara,WP	Active
Teak provenance/progeny trial XS1411 (joint FD /KFPL *trial)(Tectona grandis)*	02/2000	1.25	L40 Spur Rd, Poitete, Kolombangara,WP	Active
Sea Almond (*Terminalia catappa)*	06/2002	1.0	Nusahope,Roviana Lagoon, WP	Active
White beech *(Gmelina moluccana)*	2003	1.0	Saika, Vona Vona Lagoon,New Georgia,WP	Active
White Beech (*Gmelina moluccana)*	10/2003	1.0	Bahoro, Rovina Lagoon, New Georgia,WP	Active
White Beech *(Gmelina Moluccana)*	11/2003	0.5	Beti Family, Munda, New Georgia,WP	Active
Kerosene Wood (*Cordia subcordata)*	03/2004	0.24	Tavo Island, New Georgia, WP	Active

Source: (SPRIG Report phase 2, 2005)

CHAPTER 5

THE STATE OF NATIONAL PROGRAMS, RESEARCH, EDUCATION, TRAINING AND LEGISLATION

The Ministry of Forest & Research of the Solomon Islands government is responsible for the overall management of the Forest Resources of Solomon Islands. The Forest Resources & Timber Utilization Act, which guides the ministry, provides for the conservation of forests and the improve management of Forest Resources, control timber harvesting, encouragement and facilitation of sustainable forestry activities, establishment of plantations, and domestic processing of timber. In implementing these programs, national forestry strategies were incorporated into plan of actions which focuses on;

- Establishment and Enactment of appropriate Forest legislations and standards to ensure a holistic management and transparent approach towards sustainability to achieve a better balance in the pecuniary and social benefits for both the landowners and government.
- Implementation of the National Forest Plantation Development Program to assist local communities to undertake reforestation activities.
- Monitoring and Management of the timber industries and marketing of Forest Products
- Promotion of downstream processing and marketing system of eco-timber for both local and export by local sawmill owners.
- Monitoring the extent and quality of National Forests for appropriate management
- Promotion of Sustainable Forest Management Programs and strategies
- Forest Management for Conservation and protection for Climate Change Adaptation and Mitigation.

The National programs implemented by the MoF&R coincide with the NCRA Forest policies presented in ***Annex 6.*** The current ongoing national forestry programs funded by SIG are; National Forest Plantation Development Program, and the Timber utilization and downstream processing program.

FIGURE 4: SMALL SCALE REFORESTATION (SOLOMON ISLANDS)

NATIONAL FOREST PLANTATION DEVELOPMENT PROGRAM (NFPDP)

The National Forest Plantation Development program (NFPDP) is a Government initiated program aimed at promoting small scale holder forest plantation establishment throughout the country as a practical approach to address the decline in wood flow.

This is the real growth opportunity in the Solomon Islands, as large areas of land are available and people can see the value in investing time and effort into tree plantings so as to achieve future benefits. The MoF&R is concentrating on encouraging people to plant high value species such as Teak and Mahogany on small scale basis. To date, more families have been assisted by the Forest Department to plant trees for an area around 14,000 hectares spread across the country. It is hoped that this rate can be maintained, building a significant resource that can generate future wealth and benefits for the people of the Solomon's. KFPL and EPPL are also increasing the establishment of higher value species and this will assist by providing a

resource controlled by single operators that will attract future buyers into the country. Update on forest plantation establishment by small scale holder and the industrial scale is in table 15. In industrial plantations, *Eucalyptus deglupta* and *Gmelina arborea* are the common planted species while *Tectona grandis* and *Swietenia macrophylla* are promoted in small scale planting programs (table 16)

TABLE 15: SUMMARY OF SMALL SCALE HOLDER AND LARGE SCALE FOREST PLANTATION DEVELOPMENT IN SI.

Owner	Location	Current planted area (ha)	Commercial area in 2005 (ha)
Small scale holder	Throughout the country	14,300	8,567
KFPL	Kolombangara (Western)	14,354	7,600
Eagon (EPPL)	Viru harbor (Western)	12,500	10,600
Eagon (ERCD)	Moli (Choisuel)	3,191	300
Old FD plantations	Santa Cruz	2,900	-
	Gizo	600	-
	Shortlands	2,100	-

Source: Ministry of Forest and Research

MAJOR FOREST PLANTATION SPECIES

Both the small holder and the industrial forest plantation development programs focuses mainly on high value forest plantation species such as TECG, SWIM, EUCD and GMEA. 65 % of small holder forest plantation consists of TECG driven mainly because of its higher global market prices and shorter rotation periods whilst 28% of large scale industrial plantation consists of EUCD grown mainly for pulp production.

TABLE 16: SUMMARY OF PLANTATION SPECIES PLANTED BY LARGE SCALE COMMERCIAL FOREST PLANTATION AND VILLAGERS.

Industrial Plantation		Village Plantation	
Species	Proportion	Species	Proportion
Eucalyptus deglupta	28%	*Tectona grandis*	65%
Gmelina arborea	19%	*Swetenia macrophylla*	14%
Campnosperma brevipitiolata	14%	*Eucalyptus deglupta*	11%
Swetenia macrophylla	14%	*Gmelina arborea*	9%
Terminalia spp	9%	Others	1%
Agathis macrophylla	7%		
Tectona grandis	3%		100%
Acacia sp	2%		
Others	4%		
Total	100%		

Source: Ministry of Forest & Research

FOREST UTILIZATION AND DOWNSTREAM PROCESSING

With the increasing depletion of the commercial natural forest, the economic, social and environmental importance and potential of the forest must be sustained and maintained, and as such, the MoF&R is currently implementing integrated strategies that both maintained the natural status of the forest as well as sustaining its economic potential. This approach fully satisfies the national objectives (k) and (m) of the NCRA Forest policy

objective which states "Generate *opportunities for the growing population and achieve high economic growth, wealth and social wellbeing for all Solomon Islanders*" and " *Ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change".*

In implementing the program, the following targeted areas have to be addressed;

- Promotion and Awareness to Resource owners and milling operators
- Training program to milling operators on sawing, grading, seasoning, treatment, technical calculations and exporting procedures.

FIGURE 5: DOWNSTREAM PROCESSING IN SI

During the past 2 years, the priority area was to improve services to forest resource owners on capacity building and providing tools & equipment for sustainable harvesting of forest resources which valued to more than SBD12, 000,000.

The program also assisted Value Added Timber Association (VATA) who is currently facilitating marketing of timber products at maximum prices to resource owners. VATA is an independent body supported by the MoF & R to assist with marketing of processed timber internationally as of 2010. In 2011, an estimate total volume of 210,526 m^3 of quality sawn timber was exported with an equivalent value of SBD1, 035,229.59. The program is ongoing as more resource owners will maximize benefit from forest resources than granting timber rights for large scale logging activities.

FOREST RESOURCE MANAGEMENT AND TECHNICAL SERVICES

The FRMTS undertakes corporate planning and management of the forest sector. Continuous assessment and monitoring of the forest resources and implementation of appropriate and relevant policies, strategies and programs; the main activities includes;

- Policy and Planning functions
- National legislation and policy review
- National forest monitoring and assessment
- Forestry information system
- Monitoring, assessment and prosecution
- Climate change and carbon trading
- Institutional strengthening
- Development and assessment of permanent sample plots

National Program on MAR-SFM

I. Establishment of pilot PSPs (Permanent Sample Plots) in Guadalcanal with recommended design under training for forestry officers to adopt all necessary skills for the successful implementation of objective (ii)
II. Examine permanent sample plots (PSPs) for data collection on the forest resources
III. Develop additional components to the current database of forest resources information system (FRIS)

IV. Strengthen the technical capacity of the staff through trainings
V. Raise awareness of forestry stakeholders on the significance of (PSPs)
VI. Elaborate on a mechanism to manage and maintain PSPs after the project support.

FOREST INDUSTRIES & UTILIZATION PROGRAMS

Timber harvesting, management and monitoring are coordinated by the forest industries and utilization function of the MoF&R as part of its routine functions. The mandatory programs were focused mainly on monitoring compliance to COLP, FRTUA and quality control to ensure that logging companies operate within the requirements of the Forestry Act. These functions include;

- Monitoring compliance to COLP & FRTUA
- Quality control on log shipments
- Management of timber harvesting operations

FIGURE 6: LOGS CHECKED AND READY FOR EXPORT IN SI

NATIONAL HERBARIUM & BOTANICAL GARDENS

The activities mandatory under this function are in line with the CNURA and NCRA forest policy specifically targeting;

- Plant collection and identification
- Conducting training & awareness programs on the significance of plant species and their status.
- Facilitate international joint research programs
- Continuous upgrading of the Botanical and Herbarium facilities & Collaboration with regional and international research institutions.

NATIONAL, REGIONAL AND INTERNATIONAL COMMITTMENTS

Solomon Islands, is also a member and party to the national. Regional and International agency and conventions and is obligated to fulfill requirements and standards.

- Secretariat of the Pacific Community (SPC)
- United Nations Food and Agriculture Organization (FAO)
- Pacific Islands Forum Secretariat (PIFS)
- World Wide Fund for Nature (WWF)
- Conservation International (CI)
- United Nations Framework Convention for Climate Change (UNFCCC)
- Convention for Biodiversity Conservation (CBD)
- Reduced Emission from Deforestation and Degradation (REDD)
- United Nations Convention to Combat Desertification (UNCCD)

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CONSERVATION AND MANAGEMENT OF SI'S ENVIRONMENT (MINISTRY OF ENVIRONMENT AND CONSERVATION'S STRATEGY)

(Supports the National Biodiversity Strategy and Action Plan)

Key Issues/Problems	Priority Outputs
Conservation and Management of Biodiversity • Loss of Forest • Over Exploitation of Natural Forest • Unsustainable Developments • Negative impacts of invasive species • Lack of Data on species, habitats and ecosystems • Environmental issues not prioritized or considered	1. Conduct research and collect data for species management 2. Develop strategy to ensure greater compliance with forestry and environment legislation 3. Provide enforcement training for police, customs, quarantine and provincial staff. 4. Hold Annual State of the Environment Conference for all key stakeholders in the country to discuss the progress report on the NBSAP which SI has adopted as per Rio Convention. 5. Facilitate Tertiary level environment training at Solomon Islands College of Higher Education.
Protected Areas • Need to clarify purpose and definition of protected areas. • No legislation • No data • Increasing Biodiversity loss • 85% of land customarily owned	1. Develop Policy on Protected Areas 2. Develop legislation and related regulations 3. Establish monitoring and evaluation system.
Development Control • Lack of awareness of requirements • Inadequate environmental standards • Inadequate legislation • Poor compliance	1. Tighten system for compliance 2. Provide EIA and compliance related training 3. Provide community-Wide awareness programs

ACIAR AGRO-FORESTRY PLOTS

The current Project that runs in collaboration with The Australian Centre for International Agricultural Research (ACIAR) has been implemented since July 2008.
The Project is aimed at Improving Silvicultural and Economic outcome for Community timber plantations in the Solomon Islands.

It is a four year Research Project which will end in April 2012. There after a proposed project will look into the possibility of assisting out growers on Marketing of Teak thinning products as the next focus. To date, an agro forestry booklet has been produced both in English and in Solomon Islands Pidgin English as well as a social baseline survey conducted in Baraulu and Sychar villages in the Western Province and Metapono on Guadalcanal Province.

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Objective of the Project.

The Project looked at the problem of Tree farmers not willing to thin their Teak Plantations.
For this reason there are three options which the Project focuses its attention;

1. Set up Thinning Trials on existing Community Plantations to compare the effects of thinned and non-thinned Plantation to show the outcome in the hope of convincing the farmers to thin their plantations.
2. Interplant Flueggea Flexuosa a local durable tree with Teak as Agro Forestry system. (Also looks at Thinning options) A better way to grow Teak.(only thin flueggea and leave teak spaced out as thinning of flueggea progress
3. Establish Nelder Trials of Teak and Flueggea for better spacing option at Tetere on Guadalcanal and Poitete & Ringi in the Western province.
4. Look at the nutrient intake of both Teak and Flueggea
5. Flueggea being a durable timber species has the potential for poles and fence post should overseas market is available. Locally it is a valuable species for house construction.

Initially wood Samples on both Teak and Flueggea of age ranging from 5-20years were sent to Australia for testing of Wood properties.
The work is in collaboration with SICHE Forestry School, Rural Training Centre's, especially Airahu RTC in Malaita, Vanga RTC in Kolombangara and Tabaka RTC in New Georgia.
KFPL and Forestry and Sychor Community also participated in the setting up of Trials which are assessed regularly for Data collection and ensuring that all established trials are maintained and assessed.

AUSAID FOREST MANAGEMENT PROGRAM

The program was aimed at reforming the forestry sector. The initiative has the following components;

- Capture of Export Revenue
- Forest Resource Inventory
- Legislative Reform
- Training and capacity building for community based reforestation

General Terms: Pursuit of Reforestation with Communities through reforestation rehabilitation and quality control of log export.

The program in its initial term of reference and priority aims to address rehabilitation through reforestation. There are currently 12,000 families planting trees, many of which are high valuable species (teak & Mahogany). Activities targeted garden/or degraded areas. They had achieved 1000 ha in 2003/2004; with an aim to target 1000 ha/yr. the program see a need for better promotion between communities and advancing information to assist the communities.

PROTECTION AND MANAGEMENT

The World Wide fund for nature (Solomon Islands) WWF (SI) Developed a National Forestry Conservation and management strategic plan in 2005 with the help of stakeholders throughout the country following a national workshop held in Honiara. It secured EU STABEX funding for program implementation in 2006 and carried out its project activities from 2007 to 2011.

The Overall goal of WWF (SI) forestry program then was;

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"*To support Solomon Islands people to conserve biodiversity and to ensure sustainable livelihoods and improve forest governance"* The strategy was impetus for the granting of the European Union (EU) Stabex funds for a National Sustainable Forestry Conservation program.

To achieve the above goal, it sets a series of targets under these themes;

1. Forest Protected Area
2. Sustainable Forest management through market mechanism (Livelihood projects)
3. Forest Governance.

- Most of the activities covered : Westerrn province (Kolombangara,Rendova,Tetepare,Marovo and Vella llavella Islands and Choiseul province(Southern region) and Renbel province (Lake Tenggano World Heritage Project.It did not cover Guadalcanal ,Makira,Malaita,Isabel or other Provinces and Islands although the original strategy is cover most of the archipelago..

  WWF (SI) Program Management:

- The Honiara based office oversees the project, administration and financial aspects. It was managed by an expatter iate forester with vast and broad experience in forestry issues within the Asia – Pacific region. He was a Msc Forestry Graduate from Oxford University. Two forestry field offices were established in Western Province at Rendova (Ugele Village) and Choiseul Province at Sasamuqa.These were managed by two highly qualified and experienced Solomon Islands foresters who deal directly with qualified and experienced to implement sustainable forest conservation activities.

  Outcomes /Achievements/Results:

- Target 1: Forest Protected Areas (FPA):

- More than five community and tribal owned FPAs were set up and supported in Vella lla Vella Kolombangara,Rendova ,Marovo and Tetepare Islands in the Western province.In Choiseul province,four community -owned FPAs were established. These FPAs covered about 50,000 hectares.

- Target 2.Sustainable Livelihood Projects
  Direct and Indirect Technical and Financial Supports were given to respective communities in setting up family, communal and individually owned income generation projects such as honey production, piggery, poultry,etc

  Target 3: Forest Governance:
- A major achievement of this sustainable forest management project was the enactment of the Solomon Islands Protected Areas Act 2010.Working in close partnership with relevant government ministries departments, on government organizations, communities and other important stakeholders, the project provided financial support and sourced technical help in various ways have the PA Act 2010 passed in the national parliament.

INSTITUTIONS OR A NATIONAL PROGRAM FOR FOREST GENETIC RESOURCES

There has never been a national coordination mechanism establish to include different institutions nor a national program for forest genetic resources in the country. The activities on forest research and forest genetic resources

has been independently implemented by the Ministry of Forest and Research jointly with SPRIG, SPC, FMP, KFPL and Eagon Resource Development on small scale basis. The Ministry of Environment, Conservation and Meteorology continue to implement biodiversity components of the NEM's strategy. Table 17 presents the institutions and level of programs implemented by these institutions and agencies.

TABLE 17: INSTITUTIONS INVOLVED WITH CONSERVATION AND USE OF FOREST GENETIC RESOURCES

NGO's and civil society have an important role in supporting government actions in Solomon Islands, according to the (Thomas (2006),under the UNCBD obligations as well as the national environment and sustainable development agenda, NGO's work at the grass roots level and sharing with resource owners help towards achieving;

- Poverty reduction and sustainable livelihoods for rural communities, including marginalized groups such as women and youth, based on the equitable use and sustainable management of natural resources.
- The protection of the Solomon Islands' globally and economically important biodiversity through sustainable management of natural resources and
- Improved capacity for resource management and development of appropriate livelihood options through collaborative partnerships, shared learning, linkages and better communication for resource managers-

Name of institution	Type of institution	Activities/programs
Ministry of Forest & Research	Government	Forest Management & Utilization, Technical services and development, conservation & Research
Ministry of Environment, Conservation & Meteorology	Government	Biodiversity conservation, implementation of the NEM's.
The Nature Conservancy (TNC)	Agency	Assist NGO's & communities in biodiversity management. Its capacity building and awareness is targeted at Traditional leaders and community groups. TNC involves in a number of conservation projects such as the Anavon marine conservation and work on marine conservation in Choiseul and Isabel Islands.
Green Peace	NGO	Carries out advocacy work on environmental issues particularly forestry issues. It works closely with Solomon Islands Development trust on the Eco forestry project.
Live and Learn Education		Its main activities are awareness raising, mobilizing community advocacy for environment change and improvement, management, and training of school teachers on environmental learning materials. Its key programs includes; Forestry, water and waste management, Advocacy, education for sustainable development and biodiversity education.
Environmental Concerns Action Network of Solomon Islands	Local NGO	Promote environmental awareness action, and foster the conservation and sustainable use of natural resources. Its previous key activity is

(ECANSI)		the forestry was the promoting the passing of the new forestry bill which is currently being reviewed again.
Conservation International	International agency	Assist NGO's and communities in Forest management & conservation- support species and ecosystem conservation, partner with other NGO's, civil society and government to build capacity to achieve conservation outcomes.
World Wide Fund for nature (WWF) Solomon Islands	Agency	Support Solomon islands peoples to conserve and manage sustainably their natural inheritance for present and future generations.
Lauru Land Conference of Tribal Community.	Community	Forest & marine conservation
Kastom Gaden Association (KGA)	NGO	Promotion of agricultural crops for livelihood development and food security through providing training in organic farming, integrated pest management, seed saving and sustainable food processing for isolated areas. KGA works in partnership with SPC and University of Queensland for storage and cleaning of SI plant materials.
SPC	Agency	Assisted Forestry in capacity building, quality control of small holder plantations, tree gerplasm, Timber marketing (Refer to annex 9 for detail joint programs).
NRDF	NGO	Forest, Management, Reforestation & Biodiversity assessments.
Oxfarm	Agency	Advocating for appropriate natural resources development activities which build in environmental and social factors into any economic growth activity

(Source: Thomas ,2006)

TRENDS IN SUPPORT FOR FOREST GENETIC RESOURCES CHANGED OVER THE PAST 10 YEARS

The trend in support to forest genetic resources has change a lot over the past 10 years; in the past, the Forestry department research activities were greatly enhance and fully supported by joint research programs such as SPRIG in particular. After the completion of the SPRIG program, most of the forest research activities were managed by the Forestry department on relatively minimal annual budgets. Just recently ACIAR concentrated on promoting *Flueggea flexuosa* trials confined mainly in Western and Malaita Provinces. It was eminent that research activities were declining instead of becoming stronger; this is an impact from decreasing government funding.

Education and training are also key negative contributing factors; research officers were not given appropriate skill training either internationally, regionally or locally. Few of the well trained Forestry officers exit from the Forestry department living the program in total despair of qualified technical personnel's.

BUDGET ALLOCATION FOR FOREST GENETIC RESOURCE RESEARCH

In the past, there is not much work done on forest genetic resource research although in the 1960's much of the Forestry research activities were basically on forest plantation management silviculture to supplement large SIG reforestation activities carried out in the Western province, Isabel Province and Temotu province respectively.

SPRIG program assisted Forest Research activities focuses on seed collection of identified priority indigenous tree species to develop growth trials, conservation stands and community forestry plots. This activity is fully funded under the SPRIG funding supported by the Forestry Department. Currently, tree breeding and improvement program on few selected species is done by the Ministry of Forest and Research through the Forest Development and Reforestation division.

The budget allocation for such program has been confined mainly to seed collection & processing, and maintenance of existing research plots established by SPRIG, Forestry Dept and FMP with an annual budget of SBD200, 000.

LEVEL OF QUALIFIED FORESTERS/INSTITUTIONS

SI lacks qualified foresters, a hand full of qualified foresters were retired or find job elsewhere, few of the remaining qualified foresters work as head of departments within the Forestry department which is more administratively oriented, the highest level of qualification within the Forestry department personals are; Masters in Forest management (2), Bachelor in Forest Science (7), one officer is currently studying overseas (masters in Forest management). The highest academic level of Forestry institution in the country is; Certificate in Forest Management, which is offered by the Solomon Islands College of higher education (SICHE). Unless higher academic level forestry institution is established, this trend will continue on for the next 5 years and even more.

NEEDS AND PRIORITIES FOR RESEARCH, EDUCATION AND TRAINING TO SUPPORT THE CONSERVATION AND SUSTAINABLE USE OF FOREST GENETIC RESOURCES.

Development of human resource in the forestry sector is the most critical component through research, education and training. Most research in the past was conceived and planned by outside experts. The involvement of forestry personnel's was limited to general field activities such as establishment of plots and field measurements. Currently the existing research staffs do not have the ability to identify research problems, design and prepare research proposals, analyze research results, interpret data or draw conclusion for mitigation of threats. In order for the country to fully support the conservation and sustainable use of Forest genetic resources; certain issues needs to be immediately address, as presented in table 18.

TABLE 18: PRIORITY NEEDS FOR RESEARCH, EDUCATION AND TRAINING.

Research	Establish new research facilities, improve existing facilities, allocate more funding to research on forest genetic resources, develop national research programs on forest genetic resources and promote international and regional joint research on forest genetic resources.
Education	Long term training of forestry officers specifically on forest research courses as indicated under training.
Training	Skill training offered to forestry officers on tree improvement, tree breeding, seed collection & processing, forest research, taxonomic botany, biogeography and ethno botany, Forest ecology, forest and plant genetic management, and, conservation and natural resource. On- job training at regional seed centers.

	Community trainings targeting community conservation groups.

Source: Base on stake holders recommendations

LEGAL FRAME WORK FOR FOREST GENETIC RESOURCES STRATEGIES, PLANS AND PROGRAMS

Currently, there are no establish legal frame for forest genetic resource strategic plans and programs in SI, though, the MoF&R continue to promote a*dhoc* research programs related to forest genetic resource on minimal budget and scale. Other relevant Acts provides provision for genetic resource development but again limited funding, lack of expertise and political will hinders implementation of such research activities.

NEED FOR STRENGTHENING FOREST GENETIC RESOURCES LEGISLATION

It is of paramount significance to prioritise developing or strengthening forest genetic resource legislation to ensure that research work and management of forest genetic resources is implemented. Table 19 presents the priority needs especially to improve forest genetic resource legislation, improve reporting requirements, create forest genetic resource targeted regulation and to enhance stake holder collaboration.

TABLE19: NEEDS FOR DEVELOPING FOREST GENETIC LEGISLATION

Needs	Priority level			
	Not applicable	Low	Moderate	High
Improve forest genetic resources legislation				√
Improve reporting requirements				√
Consider sanction for non-compliance			√	
Create forest genetic resources targeted regulations				√
Improve effectiveness of forest genetic resources regulations				√
Enhance cooperation between forest genetic resources national authorities				√
Create a permanent national commission for conservation and management of forest genetic resources				√
Other (Please specify)				

Base on stake holders view

MINISTRY OF DEVELOPMENT PLANNING AND AID COORDINATION POLICY

The Ministry of Development Planning and Aid Coordination has included policies to address and promote activities related to Forest Genetic Resources and improve livelihood implemented under different line Ministries such as; Ministry of Forest and Research, Ministry of Environment, conservation & Meteorology and Ministry of Agriculture & Livestock. This is indicated under the MDPAC 2011-2014 Development plan of action. **Refer to Annex 7**

PUBLIC AWARENESS:

Currently, magnitude of awareness programs on forest genetic resources has been confine mainly to national forestry programs implemented under existing implemented programs such as; the need to protect the forest, promotion of Forest development & Reforestation through forest silver cultural practices and trainings provided to resource owners on forest utilization and downstream processing. The level of public awareness and the issues presented are general and do not contain specific important information on forest genetic resources. In order for public awareness programs to be effective, the MoF&R must take a leading role to ensure partner ministries are involved such as; Department of education, NGO's and funded projects, Media organizations and churches and church networking organizations. Policies or laws dealing specifically with public education and awareness can also play a major role. Table 20 presents the priority level of awareness raising needs.

TABLE 20: AWARENESS RAISING NEEDS

Needs	Priority level			
	Not applicable	Low	Moderate	High
Prepare targeted forest genetic resources information				√
Prepare targeted forest genetic resources communication strategy				√
Improve access to forest genetic resources information				√
Enhance forest genetic resources training and education				√
Improve understanding of benefits and values of forest genetic resources				√
Create education & awareness policies.				

Ranked by stakeholders

NATIONAL LEGISLATION

Although the country has ratified many conventions and international agreements including the convention on Biological diversity and international treaty on plant genetic Resources for food and agriculture, the country is yet to formulate appropriate policies on conservation and use of FGR. The Ministry of Forest and Research of Solomon Islands Government is responsible for the overall management of Forest Resources of Solomon Islands. The Forestry Act known as the Forest Resources and Timber Utilization Act (FRTUA) which was consolidated in 1969 is outdated and does not reflect or cater for legal control of Forest Genetic Resources, seed production and forest plantation establishment. The MoF&R in collaboration with Solomon Islands Forestry Management Project (SIFMP) prioritise reviewing of the FRTUA and produce an item of legislation-the Forest Act 1999 which provides for conservation of forests, improved management of forest resources, control of timber harvesting, promoting sustainable forestry activities, establishment of Forest Plantation and downstream processing. The Forest Act 1999 was passed in parliament but has never been gazetted therefore is not legal and never been enforced. A review of the Act was done in 2004 which resulted in the forest bill 2004 that is yet to be presented to the Parliament, should the forest bill 2004 is presented to the parliament and enacted, it will replace both the FRTUA and the Forest Act 1999.

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The management of forest resources in SI under the FRTUA needs to be reviewed and amended as the rate of harvesting of commercial forest is now five(5) times the sustainable harvesting rate for example in 2010 a total of 1,732,603 cubic meters of round logs were exported, an increase of 500 cubic meters from 2009, this is an indication of heavy reliance on forest sector through logging by successive governments. The most sustainable level are calculated at 45 years rotation-the amount of milled volume has always been over-sighted or not commented on when it comes to total volume exploited.

CODE OF LOGGING PRACTICE

The Solomon Islands code of Logging Practice 2002 finally came into force in 2005. The Code sets out 13 priority standards which must be adhered to by logging companies. It also gives guidelines for planning and monitoring of logging operations on a self-regulatory basis with audits by the Forestry Division to ensure compliance.

The Code is "aimed at ensuring that where selection logging takes place, the ecological and cultural functions of the Forest, and its productivity in terms of wood and water production, are protected", (COLP May 2002). It is part of the legal regulatory framework for the forestry sector. The COLP sets 13 key standards to improve and minimize negative environmental impacts of large scale logging through;

- Environmental protection and sustainable forest development
- Recognize and respect the rights of resource owners
- Protection of areas of cultural ,historical, and spiritual significance
- Promote natural forest enrichment
- Proper harvesting, removing, scaling and grading of timber & logs to maximize benefit and minimize wastage
- Ensure safety of workers and
- Ensure that forest owners received a fair return from their forest resources.

FORESTS POLICY

Currently, the only national forest policy is based on the 2003 government policy and has not been reviewed although successive governments come up with specific related forest strategies from time to time. The 2003 policy is as outlined;

Policy: Adopt a long term review of the forestry sector

Strategies:

- Protect Ecological functions by excluding high impact uses and enforcing ecological based standards.
- Manage harvest towards sustainable level
- Support invigorated program of tree planting
- Put in place appropriate legislation

Policy: Protect future economic forestry options

Strategies;

- Apply ecological based standards to commercial logging operations
- Forbid further increases in level of log harvesting and pursue reduction to sustainable level

Policy: promote greater provincial and local-level participation in forest planning and administration.

Strategies:

- Develop some responsibility to provinces
- Established forestry extension functions within the Forestry Division.
- Provide legislative framework for Eco forestry

Policy: Provide strong support for environment and ecological sustainability

Strategies:

- Protect ecological functions by excluding high impact uses and enforcing ecological based standards.
- Observe SI international commitments

Policy: Leave commercial-scale plantations and sawn timber production for investment decisions by private sector.

Strategy:

- Remove the requirement in current logging licenses for a portion of the volume harvested to be domestically processed.

Research, Information Sharing, Awareness

- Develop a program of priority research activities in consultation & collaboration with NGO's, communities, stake holders, partners
- Develop a clearing house mechanism for SI research & information
- Develop an info & awareness programme within ECD- coordinates with Foreign Affairs, Fisheries, Forestry planning, NGO's, stakeholders, partners
- Establish framework for identifying, establishing, managing & protection of priority conservation areas.

Education, Training and Development

- SIG through appropriate departments, NGOs, donor partners & education sector to enhance primary & high school curricula to include environmental studies.
- Encourage industry (logging/fishing/agriculture/mining & exploration) to improve skills and awareness of sustainable resource management.
- Build skills of logging industry to increase compliance with the Code of Logging Practice.

Other Relevant Acts and Legislation

- The Forestry regulation No. 8 of 1960
- The National Forestry and Timber Act, 1969
- The Forest Resource and Timber utilization (Amendment ACT, 1990)
- The National Parks Act, 1954
- The Agricultural Quarantine Act, 1982
- The wild life protection and Management Act, 1998
- The Environment Act, 1998
- The Lands and Titles Act, 1968
- The town and country planning Act, 1979
- The Forestry Bill, 2004 (New) currently under review

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***Under the Protected Areas Act 2010, provisions are provided for declaration of protected areas*;** The Minister may, on the recommendation of the Director, declare by order in the Gazette any area as a protected area of biological diversity significance if the area –

- possesses significant genetic, cultural, geological or biological resources;
- constitutes the habitat of species of wild fauna and flora of unique national or international importance;
- Merits protection under the Convention Concerning the Protection of World Cultural and Natural Heritage; or
- Requires special measures to be taken to conserve biological diversity.

Before making any recommendations to the Minister, the Director shall –

- conduct meetings and consultation with the owners of the area or other persons who may be affected by the proposed declaration;
- undertake consultation with the relevant Ministries and relevant provincial government;
- carry out field study appraisal and assess and evaluate the biodiversity significance of the area;
- verify the rights and interests in the area;
- identify, assess and evaluate the conservation, protection and management options for the area; and
- Publish in a newspaper having wide circulation in Solomon Islands a prescribed public notice setting out the area to be declared and the biodiversity significance of the area.

FOREST RESOURCES AND TIMBER UTILIZATION ACT

PART VII

FOREST RESERVES

Declaration of forest reserves

LN 46A of 1978

6 of 1984, s. 5

24. Where the Minister is satisfied that for the purpose of conserving water resources within Solomon Islands it is necessary or desirable to protect the forest or other vegetation in any rainfall catchment area, he may, subject to the provisions of this Part, by notice declare such area or part thereof to be a forest reserve, and shall in the same notice specify what rights and the extent to which such rights may be exercised in the forest reserve.

Notice, enquiries and compensation

LN 46A of 1978

6 of 1984, s. 5

25. Before declaring any area to be a forest reserve the Minister shall -

(a) cause to be published in such manner as he may in his discretion consider to be adequate or most effective for the purpose of bringing it to the attention of all persons likely to be thereby affected, notice of the intention so to do;

(b) cause to be afforded to such persons an opportunity to make representations thereon; and

(c) cause to be made such enquiries as he may, in his discretion, deem fit for the purpose of ascertaining -

(i) what rights exist in that area and to what extent such rights may be expected to be exercised in the absence of a declaration as aforesaid;

(ii) the extent to which the exercise of such rights could be permitted without prejudice to the purposes of a forest reserve;

(iii) in respect of the extent to which the exercise of such rights could not be so permitted, what reasonable alternative arrangements could be made or what compensation would be appropriate,

and shall, in respect of such rights which cannot be permitted to be exercised, cause such arrangements as aforesaid to be made or such compensation as aforesaid to be paid, within one month of the making of the declaration under section 24.

SCHEDULE 1

[Section 44 (1) (r)]

PROTECTED TREES

1. Rosewood (*Pterocarpus indicus),*

2. Ironwood *(Intsia bijuga);*

3. Ebony *(Diospyros spp.);*

4. Kauri *(Agathis macrophylla);*

5. Nali Nuts *(Canarium indicum);*

6. all edible fruit trees; and

7. any other timber tree as the Minister may, by order, declares to be a protected tree in this behalf, for the conservation of timber producing trees in Solomon Islands.

CHAPTER 6

THE STATE OF REGIONAL AND INTERNATIONAL COLLABORATION

The Solomon Islands has been a signatory (ratified) to several regional and international treaties and conventions regarding environmental conservation, natural resource management, climate biodiversity and others. It joined the international undertaking on Plant genetic resources and also ratified the convention on biological diversity on October, 1995. Convention and treaties SI is a party to are;

- Convention on the conservation of Nature and natural resources
- Convention on international trade in endangered species of Fauna and Flora
- RAMSAR Convention on Wetlands
- SPREP convention
- Convention on Biodiversity
- Convention on climate change.

Other related conventions and treaties are listed in **Annex 8**

INTERNATIONAL TREATIES AND CONVENTIONS SIGNED AND IMPLEMENTATION STATUS

Solomon Islands is a signatory to the UN Convention on Biological Diversity (UNCBD) which aims for the sustainable use and conservation of biological diversity across the globe. As a party to the convention, Solomon Islands committed to obligations for addressing the loss of biological diversity in the country. However, as the UNCBD stock take report and this thematic assessment have found, many of the key obligations have not been met nor has the national environmental agenda been effective. As a result, environmental degradation and biodiversity loss continues.

In August 2006, the National Government signed an agreement with EU for stabex funds of $42 million SBD for a sustainable forestry and conservation program. The sustainable Forestry and Conservation program includes;

- Forest Management and Conservation- mobilizing the National forest conservation strategy, an endowment fund to support the conservation of a 12,000ha area of unlogged lowland forest on Tetepare Island; and a forest conservation grant scheme for community organizations and non-state sectors;
- Support to customary Forest Land owners and community based organizations- landowner advocacy and legal support unit within the public solicitors office
- Invest in marketing of Solomon Islands Plantation logs (support of forest stewardship standards)
- Support for national capacity needs- Support for forestry division and financial support to resurrect the National Forestry School

Natural Resources and Environment of South pacific (SPREP) – Protection of Natural Resources and Environment of the South pacific Region in terms of management and development of marine and coastal environment in the South pacific Region.

CITIES- Regulation and restriction of trade in specimens of wild animals and plants through a certification system for imports and exports (instrument of ratification being prepared).

World Heritage Convention: The protection of sites of outstanding universal value. Solomon Islands currently has east Rennell as World Heritage site. (Acceded 10/6/1992).

KYOTO Protocol: reduce greenhouse gases especially carbon dioxide for the 39 industrial/developed by an average of 5.2% by 2012. (Ratified 13/3/2003.

Climate Change (UNFCCC): sets an overall framework for inter-governmental efforts to tackle the challenge posted by climate change. (Ratified 28/12/1994).

Waigani Convention: ban the importation of into the Forum Island Countries of Hazardous and radioactive wastes and to control the trans boundary movement and management of hazardous waste within the South Pacific Region. (Ratified 7/10/1989).

Desertification (UNCCD) - Agreement to combat desertification and mitigate the effects of droughts in countries experiencing drought or desertification.

UN Millennium Development Goals: Solomon Islands is a party to the UN Millennium Development Goals. They have been a measure of Solomon Islands achievement towards its National goals outlined in NERRDP and monitored for implementation through the department of National Planning. The MDGs are important as national targets and a way of assessing the countries progress. However, an EU country profile assessment stated that Solomon Islands is unlikely to meet the majority of the millennium development goals by 2015'. It is found that with regards to goal 7 "***to ensure environmental sustainability"*** Target 9; ***Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources.*** Sustainable development principles are gradually being considered in policies and programmes in Solomon Islands, but natural Forest harvesting continues at an unsustainable rate and the loss of biodiversity is continuing.

The cross cutting capacity constraints that affect Solomon Islands ability to address national Forest management issues and meet international and regional environmental and forest genetic resources obligations were identified during the stake holder consultation meetings; The priority capacity issues identified were;

- Poor governance and environmental stewardship
- Ineffective legislative & policy frame work
- Lack of public awareness & information sharing for sound forest management & decision making
- Lack of scientific knowledge of, research into forest genetic resources, environmental issues including sustainable development, impacts of climate change & biological diversity
- Lack of mainstreaming forest genetic resources and environmental considerations, biodiversity conservation & sustainable development across government programmes and policies;
- Poor technology development & transfer (including loss of traditional knowledge)
- Gaps in human capacity & development; and
- Limited access to financial mechanisms & lack of financial & economic incentives.

INTERNATIONAL COLLABORATIONS

Ongoing collaboration with relevant international institutions to address important issues regarding biodiversity, and forest genetic resource related activities has been significant. The following collaborations were facilitated;

Global Environmental Facility (GEF)

The global Environment Facility (GEF) provides a source of funding to implement priority national environmental activities which complement and support the obligation of the UNCDB. This includes development of a national Biodiversity Strategic Action Plan (NBSAP), updating the state of environment report and National Environmental Management Strategy.

In 2005, WWF and its partners conducted a national workshop to develop a national forest strategy. The goal is "To support Solomon Islands people to conserve biodiversity and to ensure sustainable forest management through promotion of sustainable livelihoods and improved forest governance". It sets a series of targets under the Themes; 1) Forest Protected Areas; 2) Sustainable Forest management through market mechanisms; and 3) Forest governance. This strategy was the impetus for the granting of the EU Stabex funds for a National Sustainable Forestry Conservation Program.

Australian Center for International Agriculture Research (ACIAR)

The current Project that runs in collaboration with The Australian Centre for International Agricultural Research (ACIAR) has been implemented since July 2008.
The Project aimed at Improving Silvicultural and Economic outcome for Community timber plantations in the Solomon Islands. It is a four year Research Project which will end in April 2012. (Refer to pg. 44)

Project objectives

- Set up Thinning Trials on existing Community Plantations to compare the effects of thinned and non-thinned Plantation to show the outcome in the hope of convincing the farmers to thin their plantations.
- Interplant Flueggea flexuosa a local durable tree with Teak as Agro Forestry system. (Also looks at Thinning options) A better way to grow Teak.(only thin flueggea and leave teak spaced out as thinning of flueggea progress
- Establish Nelder Trials of Teak and Flueggea for better spacing option
- Look at the nutrient intake of both Teak and Flueggea
- Flueggea being a durable timber species has the potential for poles and fence post should overseas market is available. Locally it is a valuable species for house construction.

SPRIG (South Pacific Regional Initiative on Forest Genetic Resources)

The Purpose of the project is to promote ecologically sustainable Development in the Forestry and Natural Resources Sectors leading to enhanced quality of life of present and future generations of South Pacific Islanders.
The project goal is to strengthen the national capacity of developing Countries of the South Pacific which Solomon Islands also participated in areas of Collecting, Assessment, Improvement and Conservation of priority Forest genetic resources.

Three main areas SPRIG looked at were:

1. Conservation
   - Strategies for Conserving Forest genetic resources
2. Tree Improvement
   - Assist Countries to Collect ,propagate and evaluate priority tree germplasm
3. Institutional Development

- Improve the capability of local institutions in the Conservation and Management of forest genetic resources.

SPRIG Project had put in place valuable resources were future Research work can base their work.
One of the significant achievements of SPRIG was the establishment of the Teak Clonal seed orchard, the establishment of Teak family trial, the establishment of Progeny trials of SWIM, TEAK and EUCD which were also replicated in other provinces besides Western Province.
The SPRIG program however ended its funding in 2003. The program is taken over by SPC and since then not much assistance is forth coming. These trials are now under Government responsibility hence need financial support to continue maintaining them. As some of these former SPRIG trials have been converted to seed sources they have been given regular maintenance throughout the year.

Solomon Islands – SPC Joint Country Strategy

According to the SPC Joint Country Strategy, the following key areas were identified for collaboration work though most of these are yet to be achieved;

- Capacity building in; forestry extension workers in community based plantation development, Technical staff on the establishment of commercial forestry plantations.
- Formulation of legislation proposals regarding forestry plantation development.
- Capacity building in forestry milling and downstream processing of forest products.
- Review and revision of current legislation on forest utilization (Forest Resource & Timber Utilization Act).
- Survey of the Flora of SI.
- Capacity building of Herbarium staff
- Establishment of *in situ* and *ex situ* conservation area.
- Capacity building on forest restoration/rehabilitation of forest degraded areas.
- Support for the implementation of a national strategy and action plan for the conservation, management and utilization of forest genetic resources.

Work is also currently in progress on increasing resource base and collection of genetic material of local species targeting *Canarium indicum* and *Terminalia catapa, collections of Canarium indicum* were done on Choiseul and Guadalcanal provinces.

UN-REDD Initial National Programme

REDD+ in Solomon Islands will be implemented through the following three phases: i) **development** of national strategies or action plans, policies and measures and capacity building; ii) **implementation** of national policies and measures and national strategies or action plans; and iii) **results- based actions** that should be fully measured, reported and verified. However, at the current rate of deforestation and forest degradation, the Solomon Islands may not have much time left before the country completely loses its forests. This should generate a strong sense of urgency to address all illegal and unsustainable logging and plantation practices in the country. The REDD+ readiness process supported by the UN-REDD Initial National Programme will assist the country in meeting this challenge through, among others, helping to develop MRV and Monitoring capacities and systems in order to establish and implement appropriate policies and measures against those illegal and unsustainable practices. One of the most cost-effective strategies is through regional cooperation with neighboring countries in Melanesia, to collaboratively build the necessary capacities and share information, knowledge as well as resources to establish and implement appropriate policies and measures in each country. Such an approach is particularly critical for those technical and costly areas like MRV and Monitoring. In this

regards, the currently proposed regional approach among the Pacific countries on REDD+ would be very timely for the Solomon Islands

Natural Resource Development Foundation (NRDF)

Natural resource development foundation (NRDF) is a non-government organization based in Gizo (Western Province) and currently implementing its programs mainly in the Western & Choiseul province of Solomon Islands. NRDF and its program involve; promoting and training of resource owners on sawmilling; awareness initiatives on sustainable forest management and organizing livelihood programs within project areas, forest conservation, rapid biodiversity assessments, reforestation and promoting REDD+ programs in collaboration with live & learn.

With the REDD+, a total of 24,000 hectares has been set aside in Choiseul province for its activities with live & learn. The NRDF also assist local communities to rehabilitate 10.6 hectares of logged over area in Vellalavela with indigenous species and continue to monitor PSP's established in the past 2 years in high conservation value areas. NRDF also collaborate with world fish center for work mangroves to measure the potential carbon stock.

Country's needs and priorities for future international collaboration

Table 21 ranks the country's needs and priorities for future international collaboration to enhance the activities on Forest Genetic Resources. (*Based on wider stake holder ranking).*

TABLE 21: NEEDS FOR INTERNATIONAL COLLABORATION AND NETWORKING

Needs	Level of Priority			
	Not applicable	Low	Medium	High
Understanding the state of diversity				√
Enhancing in situ management & Conservation				√
Enhancing ex-situ management and conservation				√
Enhancing of Forest genetic resources				√
Enhancing Research				√
Enhancing education & Training				√
Enhancing legislation				√
Enhancing information management and early warning systems for forest genetic resources				√
Enhancing public awareness				√
Any other priorities for international programmes				

Stake holder rankings

CHAPTER 7

ACCESS TO FOREST GENETIC RESOURCES AND SHARING OF BENEFITS ARISING FROM THEIR USE.

About 85 percent of Solomon Islanders depend directly on natural productive systems for their livelihood. These resources are often centered on traditional lifestyle which is regarded to be sustainable. However, due to foreign influences including market forces these traditional systems are being displaced. The potential benefits from these resources are huge, yet there is currently insufficient legislation to govern how such benefits can be equitably shared between the developer and resource owners, or how to access and exploit forest genetic resources without destroying ones birth right. The commercialization of intellectual property (from forest & biodiversity resources) is another concern. In many cases, traditional developers and land owners are exploited because they received little or none of these benefits. The Government is obliged according to the Biodiversity National Action Plan to commit itself to the convention by adopting intellectual property rights legislation and policies that would enable equitable sharing, access to genetic resources and respect for traditional knowledge to be achieved at the national, provincial and community level

Forest resources are owned by clans who have free access to exploit forest resources according to the members own discretion the only exception is when larger developments are proposed such as cattle projects, schools, health aid posts and logging. In such situations, the elders or tribal chiefs must be consulted and members consented.
Most communities access forest for hunting and gathering, fuel wood collection (mostly women) and foremost for building materials and extraction of sawn timber as a potential cash generating source of income.
Article 15 of the United Nations Convention on Biological Diversity quoted from CBD, 2006 report requires parties to:

- Create conditions for access to genetic resources for environmentally sound uses on mutually agreed terms, including prior informed consent
- Support scientific research based on genetic resources
- Adopt legislative, administrative & policy measure to share fairly and equitably results of research and development and their benefits.

Ensuring access to genetic resources and their equitable sharing of benefits (ABS) from biodiversity is a key mechanism for addressing the loss of customary practices and of forest genetic resources. SI needs to provide an environment that nurtures the development of these skills in order to negotiate fair bioprospecting deals and develop new uses from biodiversity and forest genetic resources. It is therefore considered necessary to develop a framework for regulating access to genetic resources and associated traditional knowledge and to create the conditions for equitable sharing of benefits derived from these genetic resources and thereby ensuring that benefits accrue to the country and communities and not solely to users in other countries. The 2001 Second National Communications to the CBD indicated that implementation of ABS measures in Solomon Islands was a major part of the medium term development strategy for the country.

WHO IS RESPONSIBLE?

Within Solomon Islands, there is no agency explicitly entrusted with development access and benefit sharing arrangements although the Ministry of Forestry provides provision for the sharing of round log export from the

natural Forest (companies 60%: Government 25%: Resource owners 15%). Responsibility therefore must fall equally on the MECM, CDB focal point and the AG's Chambers as the principal legal office of the Solomon Islands government. Table 22 identifies some of the issues affecting the access of genetic resources.

TABLE 22: ISSUES AFFECTING ACCESS OF GENETIC RESOURCES

Status	Capacity Strengths	Systemic	Capacity Gaps Institutional/org	Constrains Individual
No activities taken at a National Level Potential interplays with FAO Treaty on plant Genetic resources for Food & Agriculture. Access to benefit sharing measures in SI must be develop in any development strategy	SI recognizes benefits of a regional approach to developing (ABS) frameworks	No agency given responsibility for development of ABS arrangements No policies or laws protecting traditional knowledge- not priority under current frame work. No assessments of risks & lost opportunities. No resource to control biopiracy Poor understanding of requirements & importance of conserving genetic resources	Potentially there are issues relating to common property & question of ownership of shared resources & knowledge. Weak provisions in Research Act. Weak provisions & implementation of quarantine regulations	Lack of skills, Knowledge, Experience, Awareness.

Source: MECM Strategy.

SHARING OF BENEFITS

Forest resources are community common asset where benefits are shared between members of the land owning group and those that are affiliated to the group (landowners) through traditional arrangements and intermarriage. Sharing of forest resources is normally through the following;

- Freedom of access to forest resources for domestic uses
- Sale of timbers from the forest normally reserve in community funds for community developments
- Sharing of royalties to members of the community from log sales (especially in areas where logging activities occur)
- Freedom of access to non-wood products and
- Clearance of forest for socio-economic activities.

POLICIES AND LAWS

There are no policies or laws relating to ABS at present. Nor has there been any assessment of the risks and lost opportunities arising from the absence of legislation.

ACTIVITIES

No activities have yet been undertaken at national level.
An NGO, Kastom Gaden Association, has a project relating to *in situ* traditional crop conservation. This is potentially significant as traditional crops are at the intersection of issues of biodiversity conservation, traditional knowledge and benefit sharing.
UNESCO has also been working with the national Museum on a project concerning traditional knowledge.
Solomon Islands has considered access to genetic resources significance especially at the regional level and requested the (SPREP) to consider the need to revise the Apia Convention with a view to promoting more effective ABS measures.
The National Biodiversity strategic action plan develop by the MECM in 2009 specify provisions and directives for benefit sharing and access to genetic resources with the prime objective to ensure that appropriate measures and regulatory frame work to control access to genetic resources are upheld by;

- Recruiting/engaging a lawyer or economist in the designing and implementation of the frame work for ABS of genetic resources
- Carryout national assessment on risks and lost opportunities on genetic material
- Establishing an interagency network to collate existing and new genetic data
- Creating a national data base and storage for genetic resource discovered (Gene bank for useful flora and fauna)
- Recruiting officers and conduct training programs for quarantine, and personnel from other relevant agencies, to implement the regulatory frame work.

Other objectives;

- To ensure that benefits are shared according to the set guidelines/criteria
- Proper coordination between responsible ministries dealing with genetic resources
- To ensure recognition of ownership of these resources/intellectual property rights (Traditional knowledge and its cultural aspects)

While these issues are important for ensuring that resource owners derived the benefits of their resources. ABS and traditional knowledge have not been a priority under the current framework. There has been no baseline assessment done on biotrade.

TREE SEED TECHNOLOGIES IN PACIFIC ISLAND COUNTRIES

The project focus is on strengthening both the pacific islands tree seed center and the national staff responsible for tree germplasm in each respective countries. The aim is to assist PITSC to: (1)established a well-documented collection of high quality seed of PIC's woody species of high regional importance; (2) facilitate the safe and effective exchange of these tree germplasm with in the region; (3) provide information on these tree species from current knowledge and research undertaken on collection, storage, germination and planting and (4) assist the individual PIC's to implement appropriate seed collection, handling and storage techniques: and to contribute to the safe and effective regional exchange of tree germplasm. Table 23 presents SI priority species for early attention of the PITSC.

TABLE 23: PRIORITY SPECIES LIST FOR EARLY ATTENTION OF THE PACIFIC ISLANDS TREE SEED CENTER

Species	Occurrence	Primary uses	Seed Type	Propagation	Notes	Priority
Cordia subcordata (island walnut)	Widely distributed	Wood for crafts, coastal stabilisation	orthodox	Propagated from seed		
Endospermum spp. Esp. E. medullosum whitewood)	Widely dist. In Pacific, also elsewhere	Timber, multi-purpose	Variable depending on species but seed often has short storage life	Fresh seed germinate readily	Candidate for vegetative propagation	3
Eucalyptus species especially E. deglupta (kamarere)	Papua New Guinea, Philippines, Indonesia, Irian Jaya	timber	Orthodox (short lived at room temp)	Fresh seed germinate readily	Improved material available from Papua New Guinea	
Flueggea flexuosa (poumuli)	Philippines to Vanuatu, exotic in Samoa and elsewhere	Timber, multi-purpose	Orthodox	Propagated from seed	Superior provenance sources from Solomon Islands	2
Intsia bijuga (kwila)	Widely dist. In Pacific, also elsewhere	Timber, multi-purpose	Orthodox	Propagated using scarified seed		
Paraserianthes falcatria (syn. Albizia falcataria)	Philippines to Solomon Islands	Timber, soil improvement	Orthodox	Seed germinate readily after scarification	Candidate for vegeta tive propagation. Superior provenance sources from Solomon Islands.	
Pterocarpus indicus (rosewood)	SE Asia, Papua New Guinea, Solomon Islands, Vanuatu	Timber, multi-purpose	Orthodox	Fresh seed germinate readily	Candidate for vegetative propagation	
Swietenia macrophylla (South American mahogany)	Introduced in many Pacific countries	timber	Short-lived orthodox	Fresh seed germinate readily		2
Tectona grandis (teak)	India, Myanmar and Thailand	timber	Orthodox	Fresh seed germinate readily after pretreatment	Improved material available from Solomon Islands	1
Terminalia spp. Especially T. catappa (tropical almond) and T. richii (malili)	Widely distributed in tropics and subtropics	Timber, edible nuts, multiple uses, cyclone resistance	Variable, species of interest most likely orthodox	Fresh seed germinate readily	Cardidate for vegetative propagation	3
Agathis species, especially A. robusta (kauri pine)	Papua New Guinea, Solomon Islands, Vanuatu, Fiji?	Wind-firm/cyclone resistance, timber	Intermediate?	Fresh seed germinate readily	Candidate for vegetative propagation	
Calophyllum	Widely dist.	Coastal protection,	Short-lived (a	Moderately	C. inophyllum	

species especially C. inophyllum (kamani)	In Pacific, also elsewhere	shade, amenity,timber nuts-oil	few month only) intermediate?	easy to propagation from seed	Japan/Taiwan project to identify wind-firm trees for planting	
Canarium species especially C. indicum (gnali nut)	Widely dist. In Pacific, also elsewhere	Edible nut,veg. oil, timber, firewood	Intermediate, seed will store in a cool room for up to 6 months	Propagated by seed little success using stem cuttings	C. indium targeted for commercial development in Papua New Guinea, Solomon Islands and Vanuatu	
Barringtonia species especially B. procera (cut nut)	Widely dist. In Pacific, also elsewhere. B. procera indigenous to Solomon Islands, Vanuatu and PNG	Species specific-nut, multi-purpose, coastal stabilisation	recalcitrant	Commonly propagated by sowing the whole fruit	Candidate for vegetative propagation	
Pandanus tectorius (pandanus)	Widely dist. in Pacific, also elsewhere	Food, multi-purpose	recalcitrant	Selected clones propagated by branch cuttings	Numerous cultivated traditional varieties exist	
Pometia pinnata (tuan)	Widely dist. in Pacific, also elsewhere	timber	recalcitrant	Fresh seed germinate readily	Candidate for vegetative propagation	3

Source: CSIRO Australian Tree Seed Center and land Resources Division of SPC, 2011

LEGISLATION ON MOVEMENT OF FOREST GENETIC RESOURCES INTO OR OUT OF THE COUNTRY

The wild life protection and management Act 1998

The objective of this Act is to comply with obligations of Solomon Islands under the Convention or otherwise to further the protection and conservation of the wild flora and fauna of Solomon Islands by regulating -

- the export of specimens that are, or derived from, native Solomon Islands animals or native Solomon Islands plants;
- the export and import of specimens that are, or are derived from animals, or plants of a kind that are threatened with extinction;
- the export and import of specimens that are, or are derived from, animals, or plants, of a kind that require, or may require, special protection by regulation of international trade in such specimens;
- the import of animal specimen or plants specimen which could have an adverse effect on the habitats of native Solomon Islands animals or native Solomon Islands plants; and
- the management of flora and fauna to ensure sustainable uses of these resources for the benefit of Solomon Islands

CHAPTER 8

THE CONTRIBUTION OF FOREST GENETIC RESOURCES TO FOOD SECURITY, POVERTY ALLEVIATION AND SUSTAINABLE DEVELOPMENT

PUTTING FORESTRY IN PERSPECTIVE.

The part played by Forestry in food security, poverty alleviation and sustainable development must be kept in perspective. Forests and its resources are just a component within the complex fabric of rural life as stated in the FAO report on Forestry and Food Security report (1989). Forest and trees play an important role in food security in the Solomon Islands but often ignored and overlooked by national programs and resource owners. This has contributed significantly to the mis-management and unsustainable harvesting of forest by resource owners.

Most of the nation's people live in rural villages located in or near forests. Those who live inland depend heavily on the resources of the forest, while in the coastal areas people make use of both forest however, utilization of these coastal and marine resources requires drawing on the forest for materials e.g. special trees for canoes. For the majority of the Solomon Islanders, the forest is their home and their larder. They take from it directly, in the form of their social and cultural identity.

For the forestry sector in SI, the issue of food security may seem to be a concern which goes beyond the capacity of its function. And yet in reality both the natural forest, farm trees provide critical support for agricultural production (e.g. maintaining & improving soil conditions, and maintaining of hydrological systems) they provide food, fodder and fuel, and they provide a means of earning cash income, thus both directly and indirectly forestry activities may have an impact on people's food security.

FOOD SECURITY

In the Solomon Islands, forests and trees do have an important role to play in food security. These are the roles that has been ignored in the past, and is currently being eroded as forest in many parts of the country are cleared through logging, local timber milling and subsistence farming practices. Food production has been confined mainly to the agriculture department

There is a lot that can be done in SI and in particular by foresters to enhance household food security such as;

- directing forest management objectives to people's food security need;
- broaden the range of products produced by forests- food and other items- and improving their supply to local people through new management approaches and access arrangements;
- encourage tree growing on farms using species management approaches that complement crop and livestock production, help protect the environment, provide income to farmers, and assist them spread risks;
- Promotion of agro forestry systems and supporting small scale forest-based enterprises by ensuring a sustainable supply of input materials, providing managerial and technological assistance.
- Providing market support to help rural people get a better price for the forest products they sell, and secure a more sustainable livelihood.

Food security is an important component of the livelihood of the people of SI, as more than 85 percent of the population of SI depends on food production for their daily sustenance. Malnutrition rate in the SI is 1.5%

according to Ministry of Health and Medical Services data (2010). an impact mainly from lack of proper diet in some communities with dense population and scarce land for farming. Though SI land conditions support food production, dependency on imported goods begins to take toll.

Within the SI, the MoF&R does not play an active role in food security as this function has been mandated under the Agriculture department in collaboration with other agencies. The part played by Forestry in food security must be considered.

Agriculture and horticulture has been the main focus and interest in the Solomon Islands over the recent years especially on coconut, cocoa and palm oil plantation development as well as household (garden) Production (Leipzig,1996).Local plantation development on coconut (*Cocos nucifera*), oil palm (*Elaeis guinensis*) and Cocoa (*Theobroma cacao*) is important for the economic, social and environmental reasons. It represents the community's active involvement in land use planning and substantial contribution to the national economy.

Subsistence farming through gardening is more common and important to rural people since more people reside in the villages and derived their daily sustenance from gardening. The gap between cash and subsistence economies is however huge. Surveys of rural livelihoods over the past fifteen years have consistently showed the importance of subsistence food production from land as safety net for rural households (Leipzig, 1996)

Communal land ownership enables customary land owning groups to access resources for subsistence and income earning purposes. Most food consumed by rural villagers is grown by them in nearby food gardens. Other important sources of food are coconuts, fishing, other marine including shell fish and mangroves, and fruit and nut trees in the forest or in village. Subsistence food production sustained the population during the displacements and fighting associated with the ethnic tension in 1999-2003. It underwrites the economy and is a major strength of the nation.

USE OF INDIGENOUS PLANT SPECIES IN SOLOMON ISLANDS

Solomon Islands is an agrarian country as 85% of the people are small holder farmers cultivating certain land area under some form of agriculture production systems for their livelihood. Agricultural products represent 24.2 % of the national exports and underpin one in five jobs in the entire economy- both in the urban centers and in the rural areas. As such agriculture in Solomon Islands remains vital to this country's economy and social prosperity. Table 24 summed up most of the indigenous plant species locally used.

TABLE 24: SUMMARY OF INDIGENOUS PLANTS SPECIES USES

Use	Description	Number of species
Food		
Staple	Includes fruits that provides mainly dietary carbohydrate	22
Vegetables	Includes edible foliages, fruits and stems	72
Fruits	Edible fruits-beneficial fructose	45
Nuts	Edible nuts-fats are obtained	18
Herb/Spice	Includes leaves eaten with betel nut, wrapping/oven leaves	12
Traditional	Food only eaten in times of shortage	11
Miscellaneous	All others including cash crops	38
Agriculture		
Multipurpose tree	Trees potentially potential for nutrient cyling,alley cropping, shade, live fences etc	39
Cover crop	Used for live and dead mulch, soil protection	2
Pasture	Pasture species including grasses and legumes	25
Weed	All agriculturally important weed species	205

Miscellaneous	Plants with pesticide properties, other species of minor importance, including trees use as "live ladders"	69
Timber		
Export	All trees of export quality	63
Local	Locally used construction timber and fencing materials	145
Canoe	Timber use in boat construction	28
Custom Uses		
Firewood	Slow and fast burning wood	79
Rope	Rope/cordage for house building, net, line thread and temporary strapping	33
Wood	For all carved items including ornaments, curios, weapons, tools, bowls and other utensils	58
Leaves	For sealing fish/ meat to be stoned oven cooked as well as for scaling the oven themselves; for wrapping goods	35
Handicrafts	Including plants used for mats, baskets, dyes.hats,fans and musical instruments	29
Miscellaneous	All other uses, such as decoration for dance, custom clothing, fish poisons and children's toys	105
Ornamental	Used for ornamental purposes, as in- and outdoor plants	159
Medicinal	Local medicinal plants	140

Source: *Henderson et,al* 1988

POVERTY ALLEVIATION

Trees and forests play an important role to the surroundings and the stability of the larger environment which as a result have several fundamental links to food security and poverty alleviation both at the micro and macro level, forests & trees help provide the stable environment conditions on which sustainable food production depends.

For many communities in the SI, forests provide the only means for restoring soil productivity (through systems of fallowing). Forest areas also represent the single largest store house of genetic diversity, a resource of great importance to future agricultural production. Its various uses in food security and poverty alleviation is presented in table 24.

Fruits: There are plenty of species endemic or indigenous to the Solomon Islands for which the edible fruit of prime importance. All can be described as multipurpose tress that some people may consider more important than the edible fruit. The list is presented in table 25.

TABLE 25: LIST OF SPECIES FOR WHICH THE EDIBLE FRUIT IS OF PRIME IMPORTANCE IN THE SOLOMON ISLANDS.

Species	Common Name	Distribution
Archidendron sp	Nyia Nwadolou	Reef Islands
Burkella obovata	Kona	Lowlands throughout, common.
Burkella sorei	Kona	lowlands throughout- rare
Eugenia malaccensis	Rose apple	throughout
Morinda citrifolia	Indian mulberry	throughout
Paratocarpus venenosa	Rakwana	throughout, occasional
Pometia pinnate	Oceanic lychee	throughout
Spondias cytherea	Golden apple	throughout-occasional
Terminalia salomonensis	To'oma	throughout

Conynocarpus	Ibo	Malaita

Source: Leipzig, 1996

Nuts: Nut (*Canarium indicum*) trees played an important role in the social history of many people of the Solomon Islands. The trees do grew wild, but most have planted near villages by local people who harvest the nuts each year and eat the kernels fresh or preserve them in shell. Continuous farming of nut species is currently promoted through agro-forestry practices whilst the production of nut *(canarium indicum*) is now at the level where products can be commercially processed and export. Table 26 list some of the endemic fruit and nut species in the SI

TABLE 26: THE IMPORTANT INDIGENOUS OR ENDEMIC FRUIT AND NUT SPECIES IN THE SOLOMON ISLANDS

Species	Common Name	Distribution
Barringtonia inedulis	Cut nut	throughout
Barringtonia neidenzuana	Cut nut	throughout
Barringtonia novae- hiberniae	Cut nut	throughout
Barringtonia procera	Cut nut	throughout
Canarium harveyi	Ngali	Temotu province
Canarium indicum	Ngali	throughout
Canarium salomonense	Adoa	lowland throughout
Finschia waterhousiana	Akama	lowland rain forest-throughout
Gnetum latifolium	Kwalo uku	throughout
Omphalea queenslandiae	Kwaolo falake	rare
Pandanus compressus	Screw pine	throughout
Terminalia catapa	Sea/Indian almond	throughout
Terminalia kaernbachii	Alita fasia	rare

Source: Leipzig, 1996

Vegetables: The diet of all communities in the Solomon's traditionally includes a large number of leafy vegetables that are collected from a range of both cultivated and wild plants termed "cabbage" in Solomon's pidgin. And they constitute the majority of vegetables food eastern in the country. These vegetables also contributed a lot to family cash flow since surplus is sold to nearby markets for family income. Table 27 presents endemic or indigenous plant species used as vegetables in the Solomon Islands.

TABLE 27: THE ENDEMIC OR INDIGENOUS PLANT SPECIES USED AS VEGETABLES IN THE SOLOMON ISLANDS.

Species	Parts used	Description
Abelmoschus manihot	young leaves	throughout
Brugueria gymnorrhiza	fruit	throughout
Cucurbita sp.	fruit	throughout (forest)
Cyathea vittata	stem core, young fronds	throughout
Cyathea brackrenridgei	young leaves and fronds	throughout
Cyathea hornei	young foliage	Roviana
Cyclosorus magnificus	shoots, young leaves	throughout
Dennstaedtia samoensis	shoots, young fronds	throughout
Diplazium esculentum	stems and leaves	throughout
Diplazium proliferum	shoots, leaves	occasional, throughout
Diplazium stipitipinnula	leaflets	throughout
Ficus wassa	young leaves and fruits	lowland
Ficus copiosa	young leaves, fruits	lowland
Ficus edelfeltii	young leaves	lowland

Ficus prassinicarpa	young leaves	Rennel, Santa Ana
Geniostoma rupestris	young shoots	occasional
Gnetum gnemon	leaves, fruits	lowland forest
Marsdenia tenaciosina	young leaves	throughout
Pisonia grandis	young leaves and shoots	coastal
Polyscias fruiticosa	young leaves	throughout
Polyscias macgrillivayi	young leaves	throughout
Polyscias scutellaria	young leaves	Temotu, throughout
Polyscias verticillata	young leaves	throughout
Pseuderanthum sp.	young leaves and shoots	coastal and inland
Saccharum edule	unopened flower	throughout
Sauropus androgynus	young leaves, tops and flowers	introduced
Solanum verbasifolium	fruit, leaves	throughout
Stenochlaena laurifolia	immature fronds	throughout

Source: Leipzig, 1996

Customary Uses:

Many plants in the Solomon islands are used in the making of traditional articles such as putty, woven materials, dyes, tools, carved, household receptacles, weapons and, fishing apparatus. The traditional knowledge on the uses of these plants has been passed down from one generation to another though not well documented. Land use changes would pose threats to these species as they are dominant in the low land forest which is subjected to conversion to large scale development and dependency. The plant species with customary uses are presented in Table 28

TABLE 28: INDIGENOUS PLANTS WITH CUSTOMARY USES IN SOLOMON ISLANDS.

Species	Family	Customary uses
Barringtonia asiatica	Barringtoniaceae	fish poison
Calophyllum inophyllum	Clusiaceae	perfume
Cananga odorata	Annonaceae	perfume, ordoment(flowers)
Coix lachrymal	Poaceae	necklace
Derris heferophylla	Papilionaceae	fish poison (salt water)
Derris sp.	Papilionaceae	fish poison (fresh water)
Euphorbia plumeroides	Euphorbiaceae	fish poison
Ficus variegafa	Moraceae	custom clothing
Guillainia purpurata	Zingiberacceae	wrapping, packaging
Heliconia salomonensis	Heliconiaceae	sealing stone ovens, roofing
Hibiscus rosa-sinensis	Malvaceae	ordoment (flowers)
Hydroctoyle javanica	Hydrocharitaceae	fish poison
Pandanus ysabelensis	Pandaceae	mats
Pandanus sp.	Pandanaceae	rain capes
Pangium edule	Flacourtiaceae	bangles, rattles (for dance)
Parinari glaberrima	Chrysobalanaceae	putty
Plumeria sp.	Apocynaceae	perfume
Polygala paniculata	Polygalaceae	perfume
Rhus taitensis	Anarcadiaceae	black dye
Selaginella sp.	Selacinellaceae	decoration

Source: Leipzig, 1996

MATERIALS FOR CONSTRUCTION, CANOES, CORDAGE AND CARVING.

One of the main assets of rural life within Solomon Islands is that people can build houses and wooden canoes from plant materials that surround them. This use of durable timber species, vines, palms, tree ferns and

bamboos in the forest is part of the traditional knowledge derived from Solomon Islanders. The destruction of the lowland forest will have an adverse impact on the population and diversity of these species which will directly impact mass communities who depend entirely on forest products for such uses. Species used as building materials are presented in Table 29

TABLE 29: SPECIES USED AS BUILDING MATERIALS IN THE SOLOMON ISLANDS.

Species	Family	Uses
Alstonia scholaris	Apocynaceae	commercial timber
Areca macrocalyx	Arecaceae	house timber
Bambusa vulgaris	Poaceae	construction, container
Bambusa blumeana	Poaceae	constructions, tongs
Calamus stipitalis	Arecaceae	cane, cordage
Calamus hollrungii	Arecaceae	cane, cordage
Calophyllum inophyllum	Clusiaceae	canoe and house timber
Calophyllum vitiense	Clusiaceae	commercial timber
Calophyllum kajewskii	Clusiaceae	commercial timber
Campnosperma brevipetiolata	Anacardiaceae	commercial timber
Canarium salomonense	Burseraceae	commercial timber
Commersonia bertramia	Sterculiaceae	house timber, rope (bark)
Cordia subcordata	Ehretiaceae	carving
Cyathea whitmorei	Cyatheaceae	house timber, spears
Cyathea alta	Cyatheaceae	house timber, fence
Dillenia salomonensis	Dilleniaceae	commercial timber
Elaeocarpus sphaericus	Elaeocarpaceae	commercial timber
Endospermum medullosum	Euphorbiaceae	commercial timber
Flagellaria indica	Flagellariaceae	cordage
Flagellaria gigantea	Flagellariceae	cordage, decoration
Gmelina moluccana	Verbanaceae	canoe and house timber
Gomphandra montana	Icacinaiaceae	house timber
Gulubia macrospadix	Arecaceae	flooring material
Instia bijuga	Caesalpiniaceae	house timber, fence
Macaranga similis	Euphorbiaceae	house timber , firewood
Macaranga urophylla	Euphorbiaceae	house timber , firewood
Nastus obtusus	Poaceae	construction, container
Palaquium sp	Sapotaceae	commercial timber
Pometia pinnata	Sapindaceae	commercial timber
Schizomeria serrata	Cunoniaceae	commercial timber
Schizosstachyum tessellatum	Poaceae	construction, poles
Scindapus cuscuaria	Araceae	cordage
Scindapsus altissimus	Araceae	cordage
Securinega flexuosa	Euphorbiaceae	house timber
Terminalia brassii	Combretaceae	commercial timber
Terminalia calamansanai	Combretaceae	commercial timber
Vitex cofassus	Verbenaceae	house timber
Xanthostemon sp.	Myrtaceae	carving, posts

Source: Leipzig, 1996

STATE OF NATIONAL PROGRAMS

DEVELOPING AN AGRO-FORESTRY FUTURE FOR THE SOLOMON ISLANDS.

Whilst a form agro forestry (growing tree and food crops together) has been practiced by Solomon Islanders over the generations, a move to pure tree cropping with Tectona grandis has occurred in the past two decades. The

overcrowded trees have not developed to full potential due to lack of silvicultural thinning, and food production is excluded. A hybrid agro forestry system that facilitates the unimpaired growth of the valuable long term tree crop whilst permitting intermittent fibre and food cropping is more aligned with traditional use of community lands.

An ideal education, training and extension continuum is possible through the collaboration of three existing delivery bodies; Solomon Islands College of Higher Education (SICHE), Solomon Islands association of rural training centers (SIARTC) and the Government Ministries including the Ministry of Forests and Research. This collegiate approach permits delivery intent and spatial coverage over the whole of the archipelago (ACIAR notes, 2011).

Market based instruments that capture the full value of the suite of products (including food, fibre, wood and environmental services) from community based agro-forestry ventures completes the sector transformation and transaction based performance. Essential ingredients of a marketing platform include independent product certification, novel organic branding and community trading co-operatives.

ESTABLISHING A HYBRID AGRO-FORESTRY SYSTEM.

The ACIAR Project in the Solomon Islands aimed at improving silvicultural and economic outcomes for community timber plantations in the Solomon Islands worked closely with the Ministry of Forest & Research in;

- Established agro forestry trials in rural training centers in the Western Province and Malaita
- Thinning trials established in Guadalcanal, Malaita and Western Province
- Scientific trials looking at spacing and species mixture in Western province (Ringi and Poitete) and Guadalcanal.
- Flueggea improvement programme at Poitete
- Developing an agro forestry booklet both in English and Pidjin that can be used as a teaching resource by extension workers and in schools and rural training centers.
- PHD candidate currently studying at Griffith University looking at species interactions within the agro forestry System.

The program is currently under review;

- Looking at establishing cooperative action among small holder growers in Western province so that they can harvest and market their teak thinning as a group.
- Adding value to product by undertaking group certification under the Forest Stewardship Council.
- Working with KFPL and EPPL so that they will act as honest brokers, buying community timber at market price and using their own product stream.
- Examine the possibility of establishing a pilot barging service to collect timber from central points and deliver to the buyers, looking at involving AusAid, ADB and others.

DEVELOPMENT OF THE ECONOMIC OPPORTUNITY OFFERED BY COMMUNITY FOREST MANAGEMENT IN THE SOLOMON ISLANDS.

A project concept is currently facilitated under the ACIAR program with the aim to further develop the economic opportunity offered by community forest management in the Solomon Islands, especially involving teak agro forestry.

Objective 1: to develop improved germplasm of both teak and flueggea

- Make phenotypic selections in existing plantations and trials, with emphasis on growth, stem form, branching and wood quality

- Collect seed and establish progeny trials
- Establish seed production areas and convert progeny trials to seedling seed orchards

Objective 2: to develop national resource projections for these species

- Carry out a national inventory of existing community timber plantations and establish an overlay of locale, soil topography, species, age and site index
- Use ongoing research plots to develop growth models of teak and flueggea as mixed and pure stands at different spacing configurations
- Estimate projections for future timber supplies from a potential national estate of varying dimension

Objective 3: to develop community timber and agro forestry trial resources for use in education and extension

- Develop an effective education campaign based on scientifically valid and locally accessible research on the effects and economic value of thinning.
- Further develop collaboration with the SIARTC to increase the geographic spread of demonstration plots and develop written material for students
- Examine introduction of agro-forestry programme into the state school system

Objective 4: to undertake sociological modeling of the impacts of logging and the uptake of agro forestry on community.

- Assess the effectiveness of the RTC model for spreading information on agro forestry
- Determine likely impacts of the scheme on the place of woman within the community, their ability to benefit from opportunities arising from adopting agro forestry systems and the role of gender in deciding how profits from timber are utilized
- Assess impact of logging on village social life, attitudes towards the environment, and forest restoration
- Gauge expectations of community timber growers, and potential impacts on social cohesion with communities

Objective 5: to investigate the use of agro forestry to capture payments for environmental services and to promote the restoration of degraded forests for timber and non-timber products.

- Establish research plots looking at restoration of degraded forests through agro forestry
- Evaluate carbon and biodiversity credits as incentives toward secondary forest management and agro forestry based community timber growing.

AGRICULTURE & FOOD SECURITY

The Ministry of Agriculture and Livestock (MAL) aims to enhance and promote a sustainable agriculture and rural development in Solomon Islands for food security and a better standard of living (MAL, 2007). The policy goal of MAL is to improve the agriculture sector by providing extension, education, regulation, and research and associated activities to increase food production, food security and standards, and economic recovery and development. As well as agricultural productivity (both commercial and subsistence) MAL aims to contain destructive pests such as the giant African snail, Asian honey bee and the fruit fly. It also conducts research on new crops and trains agriculturalists.

The Agriculture research division of the MAL is the mandated research arm of the government and it aims to provide practical answers on agriculture production. Research addresses various cropping systems not just the traditional root crops and it has established four field experiment stations in different climate zones. It plays an

important role in seeking food crops that can tolerate drought, flooding or long wet periods. It also develops participatory research work and disseminates the results across the country.

The MAL in its strategy to address food security and poverty alleviation develop key strategy priorities for food production in the country:

a) National Food security programme
b) Provincial food banks
c) Crop diversification
d) Tolerant crop species
e) Rapid response to disasters
f) Weather forecasting
g) National urban fruit tree planting

***Expected outcomes**;*

1. Increase production of food crops in small island communities/villages
2. Enhance self-reliance and food security preparedness
3. Sustainable land management
4. Improve early warning system and improved agricultural information
5. Disseminations of lessons learned at national and international levels.

SUSTAINABLE DEVELOPMENT

Much can be gained if forestry services can collaborate more effectively with agriculture departments, and agencies involved in fisheries, livestock and other related professions. Food security crosses over conventional sectoral boundaries and can only be tackled effectively through cooperative endeavors.

More fundamentally, the social, economic and political factors that create and maintain inequalities, and lie behind poverty and hunger, must be recognized. Forestry initiatives cannot change these realities. Even so, there is much that can be done to channel benefits towards poor and disadvantaged groups, provided their needs are properly identified and the necessary commitment exists There are many challenges to be faced if forestry is to contribute more effectively to food security in the SI. However, there are opportunities for optimism. Forestry philosophy and practices have changed radically over the last decades, moving away from a conventional forestry view to broader and more social forestry goals. Incorporating food security concerns such as agro-forestry practices and farm forestry can be seen as the logical next step in making forestry more responsive to people's needs, and more relevant to the development process .At the policy and planning level, very little has been done to incorporate food security as the specific objective in the forestry strategies and programs are more concentrated towards commercial logging for revenue generation as the major foreign income to support the government services.

SUMMARY AND CONCLUSION.

Forest and its genetic resources are of significant importance to the people of Solomon Islands as they provide for the social, spiritual, livelihood, economic and environmental aspects of the wellbeing of more than 85 percent of the population. The diversity and the richness of the FGR have been threatened through unsustainable forest activities, growing population and large scale agricultural development.

Although there are no precise figures to quantify genetic erosion in the country, it is believed to be wide spread because of the current extensive land use and land change. There is a need to put in place systems to monitor and report on FGR, report on genetic erosion, neither *in situ* nor *ex situ*. The major constrains to monitor FGR are lack of skilled personnel, lack of appropriate and easy to apply methodologies and lack of financial resources.

The current national programs on tree improvement and breeding are focused mainly on forest plantation species such as GMEA, TECG, EUCD and SWIM. Improved genetic materials from this work will be available in the next 10 years or so.

It is important to prioritize developing or strengthening forest genetic resource legislation to ensure that research work and management of forest genetic resources is implemented through various national programs. Important projects and programs related to FGR that is implemented by various agencies, institutions and NGO's must be integrated into national programs so that the sustainability of such programs are maintained by appropriate Government Ministries.

There are many challenges to be faced if Forestry is to contribute more effectively to food security in the Solomon Islands. However, there are opportunities for optimism. Forestry practices have change recently in its approach to promote social forestry through agro-forestry practices and farm forestry. The Ministry of Agriculture Livestock and Ministry of Forest & Research must collaborate more effectively to ensure success of future agro-forestry programs. Food security crosses over conventional sectoral boundaries, can only be tackled effectively through cooperative endeavors.

All these can only be achieved through enactment of current legislations, creation of new policies and legislation to support protection of forest genetic resources, training, research and implementation of forest genetic resource programs through collaboration with stake holders and resource owners.

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APPENDIX

ANNEX 1: LIST OF MAJOR FOREST SPECIES OF WHICH SUFFICIENT INFORMATION IS AVAILABLE TO DETERMINE WHETHER OR NOT THEY ARE THREATENED.

List of Species

Albizia falcata
Albizia salomonensis
Alstonia scholaris
Amoora sp
Burkella obovata
Calophylum kajewskii
Calophylum inophylum
Calophylum salomonensis
Calophylum vitiense
Canarium indicum
Celtice latifolia
Dillenia salomonensis
Dysoxylum spp
Elaeocarpus sphaericus
Endospermum medullosum
Eugenia spp
Intsia bijuga
Maranthes corymbosa
Palaquium spp
Parinari salomonensis
Phachonella spp
Pometia pinnata
Pterocupus indicus
Schizomeria serrata
Terminalia brassii
Terminalia calamansanai
Vitex cofassus

ANNEX 2: COMMON TREE SPECIES CURRENTLY USED

Species Scientific Name	Native (N) Exotic (E)	Current use (code)	Type of management	Area Managed
Alstonia scholaris	N	1	Natural Forest	Nil
Areca Marcrocalyx	N	4	Natural Forest	nil
Bambusa vulgaris	N	4	Natural Forest	nil
Bambusa blumeana	N	4	Natural Forest	nil
Calamus stipitatis	N	4	Natural Forest	nil
Calamus hollungi	N	4	Natural Forest	Nil
Calophyllum inophyllum	N	1	Natural Forest	nil
Calophyllum vitiense	N	1	Natural Forest	Nil
Calophyllum kajewskii	N	1	Natural Forest	Nil
Campnosperma brevipetiolata	N	1	Natural Forest	Nil
Canarium salomonensis	N	1	Natural Forest	Nil
Commersonia betramia	N	1	Natural Forest	Nil
Cordia subcordata	N	1	Natural Forest	Nil
Cyathea alta	N	1	Natural Forest	NIl
Dillinia salomonesis	N			
Elaeocarpus sphaericus	N	1	Natural Forest	Nil
Endospermum medullosum	N	1	Natural Forest	Nil
Flagellaria indica	N	4	Natural Forest	Nil
Flayellaria gigantea	N	1	Natural Forest	nil
Gmellina mollucana	N	1	Natural Forest	Nil
Gomphandra Montana	N	1	Natural Forest	Nil
Gulubia macrospandix	N	4	Natural Forest	Nil
Instia bijuga	N	1	Natural Forest	Nil
Macaranga similis	N	1	Natural Forest	Nil
Macaranga uruphylla	N	1	Natural Forest	Nil
Nastus obtusus	N	1	Natural Forest	Nil
Palaquim sp	N	1	Natural Forest	Nil
Pometia pinnata	N	1	Natural Forest	Nil
Schizomeria serata	N	1	Natural Forest	Nil
Schizozztachyum	N	1	Natural Forest	Nil

tessellatum				
Scindapsu cuscuaria	N	1	Natural Forest	Nil
Scindapsus altissimus	N	1	Natural Forest	Nil
Flueggea flexuosa	N	1	Natural Forest	Nil
Terminalia brassii	N	1	Natural Forest	Nil
Terminalia calmansanii	N	1	Natural Forest	Nil
Vitex coffasus	N	1	Natural Forest	Nil
Xanthostemon sp.	N	1	Natural Forest	Nil

Source (Leipzig, 1996)

Current use Code:

1. *Solid Wood Products*
2. *Pulp & Paper*
3. *Energy (Fuel)*
4. *Non-Wood Forest Products*
5. *Used in Agro-Forestry System*
6. *Others*

ANNEX 3: PRIORITY ENVIRONMENTAL ISSUES ASSOCIATED WITH THE STATE OF GENETIC RESOURCES

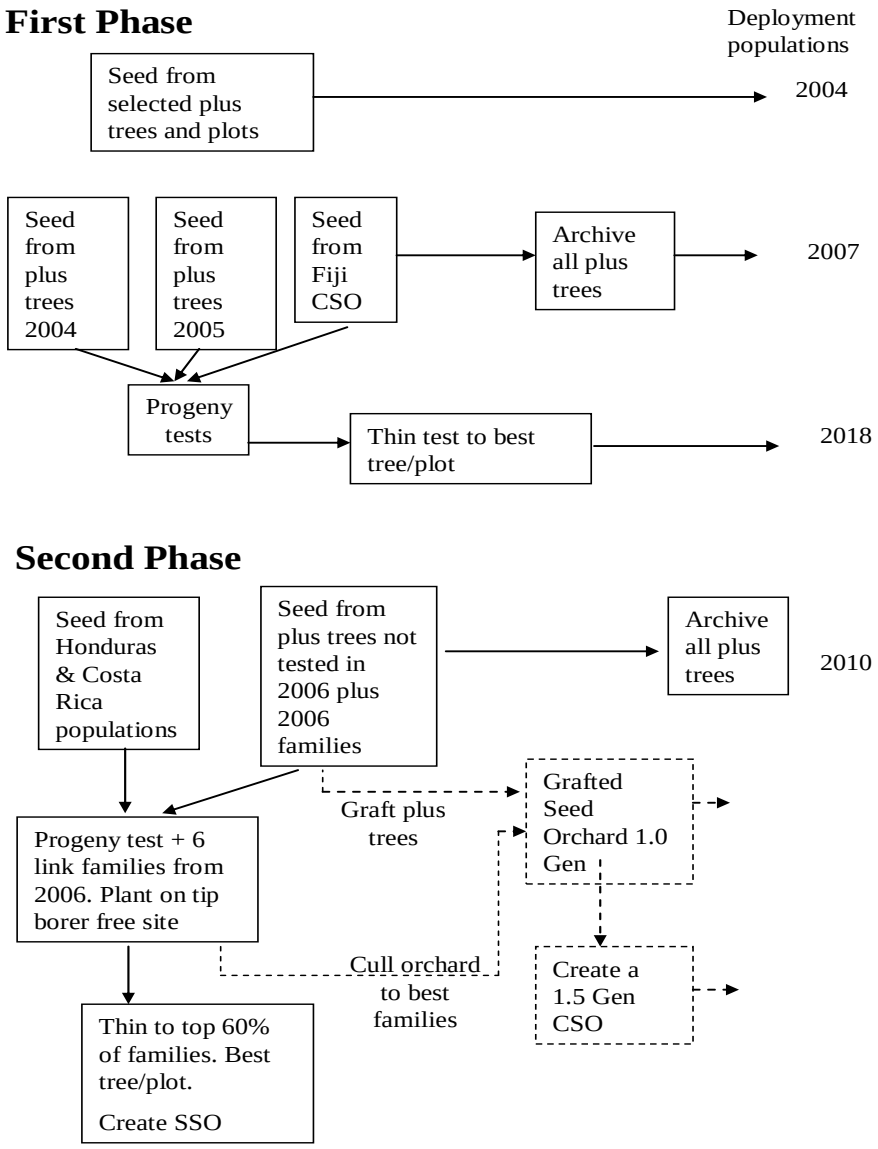
Environmental issues	Causes	Root Causes	Capacity Constrains
Over Exploitation	Over harvesting of commercial species Ineffective legal frameworks at national & provincial level. Lack of implementation or enforcement of laws Poor governance structure between central , provincial govt & village level communities Lack of priority for environmental management Lack of integration of planning between environment & economic	Increasing population Increasing demand for natural resources Lack of alternative income generating options Need for cash for goods/services/school fees Lack of awareness and access to information Changing lifestyle & economic drivers (globalization effects) High cost of living Inflation forcing people to look for ways of generating fast cash	Lack of scientific data & access to centralize data base of information State of Environmental report out of date. Forestry Act out of date Lack of National BD legislation or framework Limited capacity in ECD to provide advice, undertake research activities Lack of staff to manage BD conservation & carryout necessary research Provinces lack capacity for BD research & monitoring Lack of financial allocation to provincial govt for effective implementation of BD programs
Unsustainable use of Forest resources	Wrong perception of income from logging Uncontrolled/Illegal logging Lack of awareness by resource owners to comply with appropriate legislations Low compliance with Code of harvesting practice Lack of priority for environmental management	Greed landowners & commercial companies High economic pressure Weak governance & accountability Lack of alternative income options Limited access to banking & finance for villages and customary resource owners	Lack of landowner community management skills Land tenure system Poor enforcement in Forestry Division Outdated forestry Act Forestry division lack logistical support Tax regime not conducive to forest plantations. Logging industry lacks skills, needs training on appropriate forestry legislations.
Introduction of invasive species	Alien species brought in on imported machinery People do not declare alien	Limited capacity for quarantine & customs to stop invasive species entering the	Lack of control mechanism on introduced species in Agriculture & Forestry. Insufficient background

	plants Alien species introduced as biological control	country Ignorance of dangers to agriculture, food production & timber resources Ignorance of danger to genetic resources	research on introduced species Lack of focal point dealing with invasive species. Absence of national plat form for research Poor quarantine control & lack of effective regulatory measures
Loss of traditional knowledge	Traditional system of management being lost No clear understanding of the status of genetic resources Research not always abiding by MOUs on how to share research data & information Survey techniques not transferred to local communities Herbarium no longer functioning- collection fragmented (part in Fiji & much lost)	Changing demands & issues of environmental management Lack of awareness of opportunities & Vulnerabilities on behalf of government & community	No legal frame work to protect or support access to genetic resources Legal framework for research protocols out of date & research Act needs regulations No framework for research in SI Lack of sustainable infrastructure for national collections of genetic resources. Lack of awareness, information & data Need to complement traditional knowledge.

ANNEX 4: TREE IMPROVEMENT STRATEGY FOR SWIM

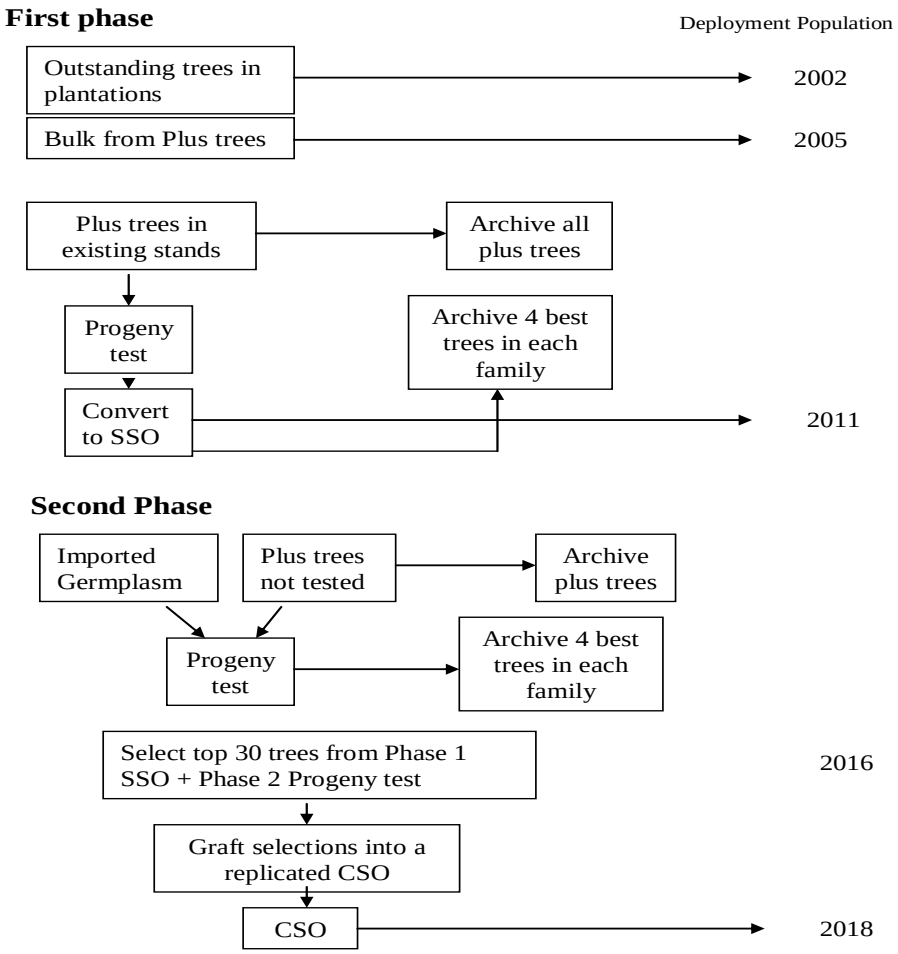
Breeding Strategy for Mahogany (Swietenia macrophylla) in Solomon Islands

Dotted line optional strategy.



ANNEX 5: TREE IMPROVEMENT STRATEGY FOR EUCD

Breeding strategy for Deglupta (E. deglupta) in Solomon islands



ANNEX 6: NATIONAL COALITION FOR REFORM AND RURAL ADVANCEMENT FOREST POLICY STRATEGIES

Policy	Strategies	Service Provider
(A). **Enactment of current Forestry Bill Draft to ensure a holistic management approach to Forest Resources to enable control of logging industry to achieve a better balance in the pecuniary and Social benefits.**	a). MFR internal review of Draft Forests Bill 2011.	Ministry of Forestry & Research (MFR), AG
	b). Consultation with relevant stakeholders such as Provincial Resource Owners, Provincial Governments, Forest Industries, Non-Government Organisations and relevant government agencies and Ministries.	Stakeholders,AG,Resource owners,MFR
	c). Revise the Draft Forests Bill 2011 after consultations.	MFR,AG
	d). The Draft Revised Forests Bill submitted to cabinet for deliberations	MFR,AG and Cabinet
	e). Public awareness to be carried out on new Forestry Act by MFR	
(B). **Suspend the issuance of new logging license and review all non-operational licenses.**	a). Suspend of issuance of new logging application in the FRTUA	Ministry of Forestry and Research, Attorney General Office, Trade and Commerce
	b). Review of all non-operational licenses and the processes and procedures for the issuance of logging licenses and suspend logging licenses of logging companies that breach sustainable forestry legal requirements.	Ministry of Forestry and Research
	c). Formulate Regulations under the Act banning re-entry logging and the control of excessive clear-felling of natural forest be developed.	Ministry of Forestry and Research, Attorney General Office
	d). Redevelopment and update licensing database	Ministry of Forestry and Research
(C). **Review the current logging taxation regime and ensure both customary landowners and the government equally share the 40%**	a).Ensure the 40% share of FOB is shared equally between government and resource owners based on FOB price.	Ministry of Forestry and Research, Stakeholder Industry, CBSI, Customs, Ministry of Finance & Resources owners
	b).Redevelopment and update of Log Export and Sawn Timber	

FOB on log exports.	databases c).Assessing and Processing of Log export and sawn timber applications d).Revenue Tracking in cooperation with Customs and Excise Division, monitor the collection of due revenue for log shipments. Check and assess Tally Sheets against Bill of Lading for discrepancies	Ministry of Forestry and Research, Stakeholder Industry,CBSI,Customs,Ministry Of Finance, Resource owners and Attorney General Office. Ministry of Forestry and Research,CBSI Ministry of Forestry and Research Ministry of Forestry and Customs, CBSI
(D). **Assist forestry research institutions so that they could identify and regulate the use of appropriate endemic species in reforestation projects, and to develop and supply improved planting materials of proven tree species for reforestation to smallholders.**	a).Upgrade Poitete and Munda Research Centers b).Replicate seed sources to meet current high demand. c).Resource equipping and skilled manpower. d).Strengthened and increase tree improvement and tree breeding program on Teak, Mahogany and Eucalyptus species. e).Provenance/progeny trial plots(collaborative) Selected species. f). Maintain links with KFPL,FAO, SPC, SPRIG and other International Organizations g). Continue collaborative research into naturally occurring bio products from SI forests (such as medicinal products)	Ministry of Forest and Research through the Forest Development and Reforestation division.
(E). **Make available technical advice and other forestry services to rural communities to assist them in managing the commercial use of the resource, as well as to transfer skills and technologies to them.**	a). Re-orientation & restructuring of MoF&R to become more customer oriented. b).Carry out relevant trainings on Forestry programs reaching rural resource owners. c).Provide logistic assistance to local stakeholders d). Strengthen and equip the current village based forestry extension service network.	MoF&R, Ministry of Public Service Establishment section, Ministry of Finance Ministry of Forestry and Research Ministry of Forestry and Research

	e). Mass media promotion for effective dissemination of information to the wider community throughout the country. f). Documentation of technical information through pumblets,leaflets, brochures and other multimedia facilities. g). Promotion of Resource awareness programs h).Facilitate Technical training and workshops to resource owners	Ministry of Forestry and Research
(F). **Liaise with other sector ministries and relevant expert stakeholders to explore a mechanism for Solomon Islands to participate in and benefit from Carbon Trade opportunities from its forest resource**	a). Sustainable forest mechanism regulation (SFM) supported by respective legislations in the country. b). Sustainable forest management certification (SFMC) criteria's inplace in the country. c). VPA and FLEGT Lacey Act complied with in the country's SFM consistency to meet criteria's for eligibility d).REDD+,UNCBD,UNCCD, CITIES Ratification and application criteria's satisfied. e). Climate Change Adaptation and Mitigation Programs identifying coastal species to stop coastal erosion implementation. f). Assessment, Valuation and facilitation of Carbon and Carbon Trade	Ministry of Forestry and Research(MFR),MECDM), MFAT, MFT, International and Regional Organizations and Agencies, Educational Institutions, Provincial Govt, Resource owners,NGO's.
(G).**Promote country-wide production and marketing system of FSC certified timber for local use and export by local sawmill owners.** **Ensure only indigenous Solomon Islanders are involved in the**	a) Establish a Timber yard in Honiara and Noro with resawing, machining,Kiln drying, and treatment plant and saw doctoring equipment. b) Assit Village Eco Timber Enterprises (VETE) carryout Forest Management trainings with resource owners in the Provinces.	Ministry of Forestry and Research, Value Added Timber Association, Village Eco-Timber Enterprises, Rural Training Centers, South Pacific Commission and Donor partners.

production and export of FSC certified timber in the country;	c) Assist Value Added Timber Association (VATA) with its current marketing efforts. d) Carryout Utilization training workshops in the Provinces on Sawing techniques and timber grading. e) Assist Resource Owners and Rural Training Centers with milling equipment and downstream processing tools. f) Assist all sawmill license holders with identification hammers for chain of custody purposes	
(H). **Promote non timber forestry products such as pharmaceutical products**	a). Expansion of the current National Herbarium to convert to host National Forest Research Institute equip with appropriate facilities and equipments. b). Collaboration with regional and international forest research institute to investigate, research and develop valuable forest Non Timber forest Products, and establish cordial networking partners. c). Maintain and strengthen bilateral cooperative ties with Kochi Makino Botanical garden and Kochi University of Technology KUT (Japan) for the inventory and research program of the medicinal and useful plants of the Solomon Islands. d). Capacity building –training of officer to acquire specialize skill and knowledge on short term training programs and higher specialized and scientific programs	Ministry of Infrastructure & Development, Ministry of Planning & Aid Coordination, Donor Agency, Private contractors, Ministry of Forestry and Research. Ministry of Forest and Research, Ministry of Foreign Affairs, MEHRD, Regional and International Forest Research Institutes. Ministry of Forestry and Research, MEHRD, Makino Botanical garden, Kochi University of Technology, Ministry of Foreign Affairs,MHMS. Ministry of Forestry, MEHRD, Kochi University of Technology.
(I). **Promote reforestation in rural areas throughout the country.**	a). National Forest Plantation Development Program. b). Promote plantation establishment to landowners and provide Technical advice on reforestation & appropriate silvicultural activities.	Ministry of Forest and Research through Forest Development and Reforestation program

	c).Establishment of appropriate simplified manuals on Forest Plantation Silviculture. d). Engage Forestry Extension officers and village based Forestry extension officers. e) Maintain the Plantation data base system f). Increase seed collection and supply to meet out-growers demand. g). Improve the out-growers subsidy scheme. h) Promote natural forest regeneration on logged over-areas.	
(J).**Monitoring of logging Operations for compliance with the Forestry Act**	a). Strengthen the monitoring and control measures relating to the environment, including the impact of logging on existing biodiversity. b).Improved forest inventory, identification & protection of high value forest ecosystems, development of alternative environment income services. c). Monitoring of compliance of 20% annual quota processing. d).Strict enforcement by Ministry of Forestry and Research and prosecution of non-compliance of Standard Logging Agreements(SLA) and Code of logging Practice. e).Monitoring of license conditions carried out in the field to comply with annual harvesting plans. f).Monitoring to ensure maximum revenue capture from exports is checked for verification.	Ministry of Forestry and Research, Ministry of Environment, Conservation, Disaster and Meteorology, NGO's Ministry of Forestry and Research, Ministry of Environment, Conservation and Meteorology Ministry of Forestry and Research Ministry of Forestry and Research Ministry of Forestry and Research Ministry of Forestry and Research,Ag,Customs,Resource owners

(K). **Improve the Capacity and Logistics of the Ministry at all levels.**	a). Review MoF&R organizational structure and make changes necessary to improve capacity.	Ministry of Forestry and Research, Public Service Establishment section.
	b). Identify officers for relevant and appropriate training.	MoF&R, NTU, SICHE and Public Service Training.
	c). Scholarship program for current SICHE students implemented.	Ministry of Forestry and Research Ministry of Forestry and Research and Lands Division, Provincial HQ.
	d). Undertake staff performance monitoring and discipline to ensure it is of a good standard.	Ministry of Forestry and Research
	e). Acquisition of land and Construction, maintenance of new and existing field offices and Staff houses priority.	Ministry of Forestry and Research
	f). Equipment and logistics materials (fuel) provided to enable monitoring and other capacity within MoFR.	
	g). Maintain and improve linkages to other agencies or organizations where there are crossover and/or complementary responsibilities.	
(L). **Centralised data base information system**	a). Consultation process with Respective Ministries on type of data available for centralised information system.	Ministry of Forestry and Research, Lands Division,MoECM and other line Ministries. MoF&R
	b). Review of forestry information systems (SOLFRIS) to determine what data can be made available in the system.	MoF&R,Donor Agency
	c). Coordinate with regional counter parts to assist and provide appropriate intervention for recent data capture and appropriate detection of the forest cover.	Ministry of Forestry and Research Ministry of Forestry and Research
	d). Engage in arrangements to provide training for Forestry	

	Officers.	
	e). Upgrade of FRIS to provide database programs for GIS data Input	

ANNEX 7: MINISTRY OF DEVELOPMENT, PLANNING & AID COORDINATION POLICY FRAME WORK.

Policy	Strategies	Start-end time	Performance indicators/expected outcome
Policy No 5.1.4 (h) Promote non timber forestry products such as pharmaceutical products	(i) Expansion of the current National Herbarium and convert it to host the National Forest Research Institute equipped with appropriate facilities and equipments (iii) Maintain and strengthen bilateral cooperative ties with Kochi Makino Botanical Garden and Kochi University of Technology (KUT) in Japan for the inventory and research program of the medicinal and useful plants of the Solomon Islands	2011-2012 Ongoing	MDPAC assists in the establishment of the National Forest Research Institute MDPAC participates in strengthening the bilateral cooperative ties with relevant institutions located in Japan
Policy No 5.1.8 (c) Increase awareness to all rural communities on the importance of conserving resources and becoming responsible custodians of the natural environment	(viii)Promote and implement the Ridges to Reefs Conservation Plan for Solomon Islands	2010-2015	MDPAC assists in seeking donor funds and technical assistance for the Conservation Plan
Policy No 5.1.8(d) Devise appropriate control mechanisms to control, reduce and monitor the adverse effects of climate change on environment and people. A nationwide relocation program shall be funded by the Government	(iii)Establish mechanisms for coordination, promotion and implementation of climate change adaptation and related projects	2011-2015	MDPAC assists in seeking donor funds and technical assistance for the implementation of climate change adaptation programs
Policy No. 5.1.2 (d) Establishment of more copra milling facilities in rural areas to facilitate the production of coconut oil, bio-fuel, animal feed and other down-stream products for export	(iv) Seek donor assistance to develop the coconut industry	2011-2014	MDPAC assists in mobilizing donor funding and technical assistance to develop coconut industry
Policy No.5.1.2 (h) Revive the Solomon Islands National Agriculture Research Institute (NATI) and revitalize field research capacity	(i) Seek donor funding to revive the NATI Research Station	2011-2013	MDPAC assists in seeking donor funding to revive the NATI Station
Policy No. 5.1.2. (i) Overhaul, restructure and reform agricultural extension services to ensure they are	(i) Seek donor funding to rehabilitate all extension service outlets throughout the	2011-2013	MDPAC assists in seeking donor funding and technical

effective and robust in providing appropriate technical advice to farmers	country		assistance to rehabilitate the agricultural extension services network
Policy No. 10.3.1 (b) The NCRA Government recognizes the importance to review legislative provisions to modify the legal basis for the promotion and advancement of women, including the provision of several seats for women to reach the maximum of seven seats	(i) Develop policies and programs that involve women and men in natural resource development and management and that respond to women's and men's different needs (ii) Improve access to and ownership of resources and land and development opportunities by women in the productive sectors of fisheries, agriculture, forestry and minerals	Feb-Nov 2011 and ongoing Feb-Nov 2011 and ongoing	Economic status of women improved MDPAC supports in channeling donor resources for women's entrepreneurship in productive sectors

Source: Ministry of Development Planning and Aid Coordination

ANNEX 8: LIST OF CONVENTION AND TREATIES SI IS A SIGNATORY (PARTY)

Convention/instruments	Status	Purpose/Aim	Agency Responsible & related Projects.
Regional MEA's			
i)Waigani Convention	Ratified 7/10/1998	Ban the importation of into Forum islands Countries of hazardous and radioactive wastes and to control the transboundary movement and management of hazardous wastes within the South Pacific region.	ECD
ii)Pollution Protocol for Dumping	Ratified 10/9/1989	Prevention of pollution of the South Pacific region by dumping.	Marine Div/ECD
iii)Pollution Protocol for Emergencies	Ratified 10/9/1989	Cooperation in combating pollution emergencies in the South Pacific region.	Marine Div/ECD *project*: National Pollution Prevention Plan
iv)Natural Resources and Environment of South Pacific (SPREP Convention)	Ratified 10/9/1989	Protection of natural resources and environment of the South Pacific Region in terms of management and development of the marine and coastal environment in the South Pacific region.	ECD
Chemicals, waste and Marine Pollution			
i)Liability for Oil Pollution Damage	Ratified	Strict liability of a ship owner for pollution damage to a coastal state within a certain amount.	Marine Div
ii)Marine pollution Convention (London)	Ratified	Prevention of marine pollution by dumping of wastes and other matter.	ECD/Foreign Affairs
iii)POPs Convention (Stockholm)	Acceded 28/7/2004	Protection of human health and environment from persistent organic pollutions	ECD/Environmental Heath Div *project*: National implementation Plan (NIP)
Biodiversity			

i)Desertification (UNCCD)	Acceded 16/4/1999	Agreement to combat desertification and mitigate the effects of drought in countries experiencing drought or desertification.	Agriculture Div/ECD *project*: National Action Plan on Land Degradation and Drought; National Capacity Self-Assessment (NCSA)
ii)Cartagena Protocol on Biosafety	Acceded 26/10/2004	Protection of human health and the environment from possible adverse effects of the products of modern biotechnology, especially the living modified organisms (LMO) while maximizing its benefit.	ECD project: National Biosafety Framework
iii)Convention on Biological Diversity (UNCBD)	Ratified 3/10/1995	Conserve biological diversity through the sustainable use of its components and the fair and equitable sharing of the benefits arising out of utilizing genetic resources	ECD project; National Capacity Self-Assessment (NCSA); International Waters Programme (IWP); 3rd National Report.
iv)CITES	Instrument of ratification being prepared	Regulation and restriction of trade in specimens of wild animals and plants through a certification system for imports and exports.	ECD
v)World Heritage Convention	Acceded 10/6/1992	The protection of sites Outstanding Universal Value. Solomon Islands currently have East Rennell as World Heritage site.	Museum/ECD *Project:*
Climate			
i)Kyoto Protocol	Ratified 13/3/2003	Reduce greenhouse gases especially carbon dioxide for the 39 industrial/developed by an average of 5.2% by 2012.	Meteorology Div
ii)Climate Change (UNFCCC)	Ratified 28/12/1994	Sets an overall framework for intergovernmental effects to tackle the challenge posed by climate change.	Meteorology Div/ ECD project: National Adaption Plan of Action (NAPA); Second National Communication on Climate Change;

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iii)Montreal Protocol	Acceded 17/6/1993	Allow phase out of substances that deplete the ozone layer according a fixed schedule.	ECD/Energy Div
iv)Ozone Layer Convention (Vienna)	Acceded 17/6/1993	Protection of the ozone layer through intergovernmental cooperation on research, systematic observation of the ozone layer and monitoring of chlorofluorocarbons(CFC) production	ECD/Energy

ANNEX: 9 – SPC JOINT COUNTRY STRATEGY

SIG MTDS priority area 5: economic and productive sectors

National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	SPC focal point	SIG comments	SPC comments
B 5.4.1 **Sustainable forestry programme** Goal: increase establishment and improve management of small-scale, family owned timber plantations and commercial forestry plantations	**Sustainable forestry programme** • Capacity building in: - forestry extension workers in community based plantation development - technical staff on the establishment of commercial forestry plantations	Richard Raomae Phone: 24503Mo 7494167 email: raomaerichy@yahoo.com.au	Basil Gua Basilg@spc.int	There is an increase in village base reforestation activities, grateful if specific research trainings and other Forestry extension trainings are provided or facilitated by SPC. Some of the officers attending referred trainings are not directly involve in forestry extension nor Forestry research.	• LRD, through the EU funded FACT Pilot Project, supported the germplasm research with the Ministry of Forestry for several forestry crop species and developing capacity of provincial and Honiara-based Forestry Research and Extension Officers; making seeds available for reforestation through nursery support and redevelopment for Ministry and Provincial centres; and supported capacity building for Forestry Staff to develop provincial reforestation policies and action plans

SIG MTDS priority area 5: economic and productive sectors

National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	SPC focal point	SIG comments	SPC comments
					• Supported one participant to the Regional Workshop on Monitoring, Assessment and Reporting for Sustainable Forest Management (MAR-SFM) held in Nadi & Suva Fiji in January 2010. • Supported one Forestry Officer to the Fiji Forestry Department Training on Monitoring, Assessment and Reporting for Sustainable Forest Management (MAR-SFM) in March 2010 • Supported two participants to the Pacific Regional Forestry Strategic Planning Workshop held in Fiji in April 2010.

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SIG MTDS priority area 5: economic and productive sectors

National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	SPC focal point	SIG comments	SPC comments
					• Secured support from BMU Germany for a 4 years REDD+ project with the Solomon Islands as one of the project countries. • Supported 4 participants to the new BMU REDD+ Regional Inception Workshop held in Suva Fiji in November 2010.
	• Production of extension materials for national awareness and extension programme through	Richard Raomae	Lex Thomson	The budget for this has been submitted but there was no positive response. We are preparing a Forestry	The proposed production of a DVD on Teak has been delayed waiting for FD to submit their detailed plan\proposal

SIG MTDS priority area 5: economic and productive sectors

National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	SPC focal point	SIG comments	SPC comments
	production of documentaries (DVD), brochures, pamphlets, posters, etc.		lext@spc.int	Televised program; can SPC assist with this program?	
	• Formulation of legislation proposals regarding forestry plantation development	**Reeves Moveni** Phone: 24216 Mob: 7494759 email: rmoveni@gmail.com	Inoke Ratukalou inoker@spc.int		No request for assistance received from Ministry of Forestry to date
B 5.4.2 **Sustainable forest industries and downstream processing programme** Goal: increase benefits to	**Sustainable forest industries and downstream processing programme** • Capacity building in forestry milling and	VATA: Cameron Eta (president) VETE: Alick Hou (Manager) For SIG: Julius	Gideon Bouro gideonb@sp		• LRD, through the EU-funded FACT Pilot Project, supported the Ministry of Forestry to redevelop 2 down-streaming timber processing enterprises, Value Added Timber Association (VATA) and

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National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	SPC focal point	SIG comments	SPC comments
the country, rural areas and resource owners from forestry by increasing value added through downstream processing	downstream processing of forest products	Houria managing Min Forestry funds for VATA and VETE	c.int		Village Eco Timber Enterprise (VETE). • LRD, through the EU-funded FACT Pilot Project, conducted SFM and Forest Certification training for VATA & VETE in February 2010. • LRD, through the EU-funded FACT Pilot Project, supported the participation of VATA & VETE representatives in the Asia - Pacific workshop on Environmental and Social Certification for Community and Small Private Landowners (September 2010)

January 1, 2012

SIG MTDS priority area 5: economic and productive sectors

National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	SPC focal point	SIG comments	SPC comments
	• Marketing strategies/opportunities for agro-forestry commodities	PS John Harunari harunari@solomon.com.sb	Dr. Shane Tutua shanet@spc.int		• Through the EU-funded FACT Pilot Project, supported the Ministry of Agriculture in improving export standards for agroforestry products, working with full support of the Ministry to help private sector enterprises.
	• Review and revision of the current legislation on forest utilization (Forest Resource and Timber Utilization Act)	**Comm. Of Forestry Reeves Moveni** Forestry Legal Advisor Martin AG (serving as legal advisors to the Comm.	Inoker@spc.int		No request for assistance received from the Ministry of Forestry to date.

SIG MTDS priority area 5: economic and productive sectors

National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	**SPC focal point**	**SIG comments**	**SPC comments**
		of Forests**)**			
	• Forest certification and the formulation and implementation of the code of logging practice	**Reeves Moveni**	Inoker@spc.int		• LRD, through the EU-funded FACT Pilot Project, conducted SFM and Forest Certification training for VATA & VETE in February 2010. • LRD, through the EU-funded FACT Pilot Project, supported the participation of VATA & VETE representatives in the Asia - Pacific workshop on Environmental and Social Certification for Community and Small Private Landowners (September 2010)

January 1, 2012

SIG MTDS priority area 5: economic and productive sectors

National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	SPC focal point	SIG comments	SPC comments
B 5.4.4 **Forestry conservation management programme** Goal: conserve and maintain the natural state of the forest to protect environment and biodiversity	**Forestry conservation management programme** • Survey of the flora of Solomon Islands	**Reeves Moveni** Fred Pitasope Phone: 24503Mo 7494167 email: raomaerichy@yahoo.com.au	Inoker@spc.int		No request has been made by the Ministry of Forestry to date
	• Capacity building of herbarium staff	Fred Pitasope	basilg@spc.int		Supported the participation of one Herbarium staff to the Regional Workshop on Sandalwood Resource Development, Research and Trade in the Pacific and Asian Region

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National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	SPC focal point	SIG comments	SPC comments
					held in Vanuatu in November 2010.
	• Establishment of in situ and ex situ conservation area	Fred Pitasope	basilg@spc.int		LRD, through the EU funded FACT Pilot Project, supported the germplasm research with the Ministry of Forestry for several forestry crop species and developing capacity of provincial and Honiara-based Forestry Research and Extension Officers
	• Capacity building on forest restoration/rehabilitation of forest degraded areas	Richard Raomae	basilg@spc.int	It will be more helpful if an expert is invited to provide training in Honiara so that most outstation officers can attend.	• A regional training workshop on forest restoration was held in Fiji in October 2008 with 4 participants from the Solomon Islands. • A regional forest restoration network is now in place and

SIG MTDS priority area 5: economic and productive sectors **National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change**					
SPC strategic support: **Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems**					
Sectoral objectives and strategies	**SPC Solomon Islands significant strategic activities**	**Review of 2010 activities**			
		SIG focal point	**SPC focal point**	**SIG comments**	**SPC comments**
					maintain by LRD to facilitate exchange of information and recommendations to all who need advice\information on forest restoration
	• Support for implementation of a national strategy and action plan for the conservation, management and utilization of forest genetic resources	Richard Raomae	basilg@spc.int	Can SPC facilitate free movement of tree Germplasm with Fiji, Vanuatu, Solomon Islands and PNG? The officer that was nominated to attend this workshop was not directly involved in reforestation or	• Supported two participants to the Regional Workshop on Improving Governance and Building Capacities for Safe Movement of Tree Germplasm Between Pacific Island States (March 2010) • Supported one participant to the Regional Workshop on Sandalwood Resource Development, Research and Trade in the Pacific and the Asian Region (November 2010).

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National objective 5.4: ensure the sustainable utilization and conservation of natural resources, protection of the environment and successful adaptation to climate change

SPC strategic support:

Technical and advisory support and capacity building in the sustainable management of integrated forest and agriculture systems

Sectoral objectives and strategies	SPC Solomon Islands significant strategic activities	Review of 2010 activities			
		SIG focal point	SPC focal point	SIG comments	SPC comments
				research work. The work of preparing the report on genetic resources needs funding, work on this report is on halt, an expert needs to assist the forestry dept. In preparing this report.	• Supported one participant to the Regional Training Workshop to Support the Preparation of the State of the World's Forest Genetic Resources in the Pacific (January 2011)