

Sustainable forest management programmes in Samoa

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Introduction

The need to save the remaining native forests is one of the central issues of environment and development today. The value of native forests to society and the bio-systems of the planet, are well documented in countless reports by scientists the world over. However, the challenge facing the global community is to transform its current practices and approaches to utilise this key resource in a sustainable and justified way.

In Samoa native or indigenous forests are fast disappearing due to logging and land clearing for agricultural purposes. The remaining forests are on customary land owned by village communities. Several efforts have been carried out with different successes to replant and conserve native forests in the country.

Among these efforts are the government reforestation programme and the forest conservation areas, established by village communities around the country. Despite these, there is yet little or no attempt to seriously investigate, and develop appropriate approaches to educate village communities, who continue to clear the remaining native forests, for timber, agriculture, or another use for their social and economic development. In trying to strike a balance between the needs of the community and the conservation of the remaining native forests in the country the Forestry Division has made several attempts to try and identify possible sustainable forest management solutions to stem the fast rate of deforestation.

The remaining forests, best described by Martel (1996)¹ are presented in Table 1. The forestry sector gained importance with the export of native round wood and timber in 1968 when extensive timber leases on Savaii were granted to US company Potlatch Forests Inc.

Forest Conditions	Upolu	Savaii	Total
Merchantable Forests	6,450	18,434	28,483
Non-Merchantable Forests	4,019	48,858	52,877
Protection Forests	18,114	9,935	28,049
Total Indigenous forest area	28,585	77,227	105,810
Village Conservation Area	1,414	6,486	7,900
O le Pupu Pue National Park/Mt. Vaea	2,864		2,868
Total Forest Reserves/Conservation	4,274	6,486	10,764

Table 1. Indigenous Forests Area Estimates (1996) Samoa (in ha) Source: Martel 1996

Between 1974 and 1987 timber exports range from \$288,500 to \$1,207,000 per year. In recent years the rate of logging has drastically reduced and the export value is now zero. Most of the productive forests both in Upolu and Savaii have been harvested with only a few places in Savaii still being harvested.

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We must acknowledge the big contribution made by forests as a carbon sink. This contribution is a very important global issue when it comes to climate change. Great deliberations have been made on the issue of Greenhouse Gas (GHG) emissions with several developed countries proposing to increase the number of reforestation programmes around the world, especially in tropical island states, to try and reduce GHG levels in the atmosphere. These have been turned down as people saw them as something that the developed countries are using just to prevent them from having to reduce their industrial GHG outputs.

This report provides an explanation of the different projects undertaken by the Forestry Division as to try and counter the problem that hinders the sustainability of our forest resources.

Sustainable development

In the report by the world Commission on Environment and Development, “Our Common Future” (WCED, 1987)², sustainable development is defined as “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs” Another commonly used definition of sustainable development, agreed on by three of the major international organisations working in the field, is “development which improves the quality of life, within the carrying capacity of the Earth’s life support system.

There is a requirement for assessing the level of sustainable land and forest management through the establishment of a set of indicators and related critical threshold values. Mussong (1998)³ calculated target diameters for tree species logging operations based on maximum diameters as an indication of maturity, consideration of the intended utilisation cycle, the wider environmental setting, and the human aspects of land/forest management. i.e. environmental, social, economic, and political aspects.

Smith and Dumanski (1994)⁴ designed a framework to evaluate sustainability of land management, which is considered to be instrumental in assessing sustainability of a certain land-use system. The framework identifies five pillars for sustainability, which are:

1. Productivity
2. Security and stability over time
3. Environmental Protection
4. Economic viability
5. Social and cultural acceptability.

Past history

In the past, forests supplied the majority of the country’s sawn timber needs, poles, building materials, firewood, as well as certain foods and medicines. Paid employment in the forestry sector supported 10% of the labour force not including the non-wood forests products. Notable achievements of the forestry sector include the National Forest Policy, the National Environment Management Strategy, Village Conservation Agreements, and the setting up of environmental NGOs. Thus, the support to forestry development from politicians, policy makers, business persons, and urban and rural communities had been quite encouraging.

Past inventory surveys

Three indigenous forest inventories were completed since 1970, mainly for establishing the level of merchantable forest, for Upolu; Savaii (Gibbs Australia, 1985)⁵ and both islands (Chandler, Larsen & Wallis, 1978)⁶. None of the reports considered indigenous forest management in their analysis and recommendations of proposed annual allowable cut.

However, it was the intention that future studies by the Forestry Division must investigate possible sustainable forest management practices that could be used for future actions and strategies.

The forest resources of Samoa were last assessed in 1992 following cyclones Ofa and Val which severely damaged the indigenous forests and plantations of both main islands. The resource assessment was compiled during the preparation of the National Forest Policy that was completed in 1994 (Groome Poyry, 1994)⁷. This assessment of the indigenous forest was based on forest classification and typing of the 1978 Forest Inventory and photo interpretation of 1990 aerial photographs of the islands.

The indigenous forest resources of Samoa have been identified as having one of the worst rates of deforestation known in humid tropical countries. Between 1977 and 1992 47% of the merchantable forest of Savaii was cleared, at an average rate of 987 hectares per year. Approximately 40 % of the clearance was due to logging and 60% was due to agricultural and other reasons from which sawlogs were not recovered. Over the same period 27% of the non-merchantable forest was cleared, at an average rate of 847 hectares per year. Since 1985 the rate of clearance of non-merchantable forest has averaged 530 hectares per year. Approximately 10% of this clearance is due to logging and 90% to agricultural and other reasons (Iakopo & Suaesi 1998)⁸. The forest resources have always been and still remain a secondary land use to agriculture and a cheap source of revenue to customary landowners.

Partly for these reasons, and despite legislation requiring the government to provide forest management practices on a sustainable yield basis, no indigenous forest management has been put into practice and license regulations were not observed or enforced thus unless remedial actions are put in place in a very short time the remaining marketable forest is likely to be depleted within the next 10 to 30 years (Martel,1996)

Main causes of deforestation

Inland expansion of agricultural lands - The expansion of cash cropping, initially for cocoa and coconuts, and the clearing of large areas of land for cattle farming, was largely responsible for forest clearing prior to 1980. In the 1980's taro production for export was closely associated with forest loss. However, with the outbreak of the Taro Leaf Blight disease in 1993 the taro industry completely came to a stop leaving large areas of land that were cultivated with taro to be fallow and regenerate. The introduction of the new Taro Leaf Blight resistant taro caused the re-existence of the problem of large areas of forest being cleared for the cultivation of taro.

Modified traditional title and land tenure system - A new form of land tenure is developing in rural Samoa that leads to increased forest clearing because land freshly cleared from the forest can now be claimed by the individual/family who cleared the land.

Increase in population - The Samoan population more than doubled between 1936 and 1961. Population increase is closely correlated with the increase in cropped land needed for agriculture. More and more people have moved to and settled upland areas.

Logging of indigenous forest

Between 1978 and 1990, 20% of all forest loss in Samoa was attributable to logging, and 97% of the logging occurred in Savaii. Because most logged areas are in coastal areas near villages, most early logging has been partly converted for village agriculture.

The domestic market is estimated at 15,000-19,000 m³ of sawn timber per year. In 1992, 25 % of the domestic demand for timber was imported, based on the local timber production figure, and in 1996 timber imports accounted for close to 45 % of the domestic demand, a dramatic increase over the last 5 years.

With the diminishing merchantable forests, the industry has made some improvements at their timber processing facilities for better utilisation and improved recovery of timber. It is unfortunate that the industry has just realised the importance of the forest resources for the sustainability of their operations only at the time the remaining merchantable forest is near exhaustion.

Impact of natural disasters to the sustainability of the forest resources

Cyclones Ofa, in February of 1990, and Val, in December of 1991, were two of the natural disasters that have caused severe damage to our forest resources and also had a great impact on our environment. Most severe was the impact to the economy of the country. Forest fires are also one of the causes of deforestation. Major fires were near the end of September 1983 and the latest in August and September of 1999, which affected large forest areas at the Asau region in the north west end of Savaii Island.

Impact of invasive species on the forest

I have identified several species that I know are spreading fast and have killed and caused severe damage to our indigenous trees. These are the *merremia vine* (or the large leaf vine) and *albizia falcataria* (tamaligi palagi - very dominant, fast growing species as a secondary forest type). The formulation of *Samoa's Invasive Species Strategy and Action Plan* will be seen a very important step towards an eradication programme for not only the invasive species but also for feral animals as well.

Government large scale reforestation project

New Zealand Official Development Assistance has provided forestry assistance to Samoa since the late 1970s employing advisers to help plan and implement reforestation. This assistance gradually increased to a stage where New Zealand also provided financial assistance. These funds were used to purchase vehicles, office and forestry equipment for roads and buildings, and to contribute to the costs of wages for forestry labourers employed by Samoa Forestry Division.

The main thrust of the joint project has been the development and maintenance of plantation forests, intended to help reduce pressure on the rapidly diminishing indigenous forests. A wide range of Samoans have benefited from this joint project, including through the employment of many villagers, both men and women. There has been a significant transfer of technical knowledge in the field to past and present officers of the Forestry Division.

New Zealand has provided approximately NZ\$1.25 million in funding per annum for the joint project, which is similar to Samoa's own Forestry Division budget. The Division manages nine forests plantations, six of which are more than 1,000 hectares in size. Seventy percent of the land is government-owned and 30 percent was acquired on renewable 20year leases from customary landowners.

After cyclones Ofa and Val the forest resource was inventoried, eliminating all under-stocked stands. The results were 351 ha. of fully-stocked plantations, only 8 % of what they thought

they had in 1989. Since the cyclones, the Division mounted an impressive campaign to replant these destroyed stands.

The average age of the total planted area is 6 years. 85 % having been planted since 1994. Thus, a severe timber shortage is likely to occur after the indigenous resource is exhausted and before the younger plantations can be harvested. The introduction of the code of logging practice for Samoa will be seen as a more safer and a reliable tool of sustainable forest management. However, with the current limited forest resource we are a bit too late in the implementation side of this code.

GTZ programme on sustainable forest management for rural communities

German Technical Assistance (GTZ)⁹ originally started its programmes and operations in Fiji. The main objective behind the programme is the application of a sustainable forest management programme that is focused on community forestry development.

The involvement and participation of the landowners in looking after their own forest resources is important because they can take the responsibility in managing their own forest resources, and when they manage it well they will have the benefit of receiving money for a long period of time.

Assistance from the project involves training workshops for landowners on inventory methods, mensuration¹⁰ techniques and silvicultural aspects of forest management. The project also bought 2 portable chainsaw mills to assist the villages.

There were a lot of problems encountered in the initial stages of the Samoa programme. One of these was the identification of a suitable site that had the full potential and the necessary requirements needed for the implementation of the project.

Three villages were proposed and were surveyed by the forestry division's staff, these were Samalaeulu, Fatuvalu and Sasina which are all situated at the Northern side of the island of Savaii. Samalaeulu village was then selected. Training workshops were then conducted and a memorandum of understanding between the village and the government was signed.

An inventory survey of the area was conducted with the assistance and participation from both the forestry division staff and the villagers. Unfortunately a land dispute between chiefs in the village resulted in the termination of the project in this village.

The project has now been transferred and established at the village of Pu'apu'a. The project has lost out in funding, because all the operations and activities that were implemented in the past have to be redone.

Community forestry programme

Community Forestry is a tree planting scheme that involves the full participation of the farmers. 100 seedlings are given to the farmer as a probation act to see whether the farmer will plant and look after the seedlings for the first period, and to convince them to get involved with establishing wood lot plantations or any other tree planting activity such as Agro-forestry.

A program was set up in the early 1980's and was funded by the Government of Samoa under a loan grant from the Asian Development Bank (ADB). The programme started with the

establishment of demonstration plots at Falealili and Safata districts to convince all farmers of the validity of the programme.

The establishment of nurseries for the two districts was also one of the important activity that assisted the program by providing support in terms of seedling supply and planting materials in order to meet the demands by future farmers that requested to be involved in the programme.

The programme at its later stages included agro-forestry as one of its supporting activity, and applied assistance to farmers who are mainly cultivating upland areas near watershed. Through this came the existence and the reality of the establishment of the first watershed management project in the South Pacific Region that was funded by FAO from 1996 to 1999.

The concern in re-establishing the same operation as one of the important alternative and possible solution to cater for the problem of divestment of lease lands was taken highly by the forestry management team. A questionnaire survey was again conducted in the year 2000 and focused its attention especially for farmers that were involved in the past community forestry project. The main objective behind this survey was to get an idea whether the farmers still accepts the re-establishment of the project and to assist the project in identifying which species is commonly accepted through out. And to set a strategy and action plan to be used.

Code of Logging Practice for Samoa

The draft Code of Logging Practice for Samoa has not been approved yet but has received great support from both the landowners and the logging companies. The code came into realisation due to several discussions related to recognising the need for a system to reduce the impact of logging on the remaining indigenous forest of Samoa.

The Indigenous Forest Monitoring Unit

A newly proposed, FAO funded project will assist the Forestry Department in its role of assessing the real situation and condition of the indigenous forests of Samoa. This information will help in the planning of decisions regarding future operations. The survey results will allow Forestry staff, especially the Indigenous Forest Monitoring Unit, to have a good, strong collaborative relationship with the stakeholders involved.

Policies and Legislation

Five guiding principles provide the foundation for the forestry policy in Samoa;

1. Optimal and Sustainable use of the forest resources
2. Forest Protection
3. Basic human needs
4. Individual and collective responsibility and
5. Economic development

On the basis of legislation and other national management plans some policy documents have been formulated and approved by Government. These are: National Forest Policy 1995; Watershed Protection and Management Regulations 1992 and National Environment and Management Strategies (NEMS) 1993.

The Watershed Protection and Management Regulations provide the mechanism to improve co-ordination between relevant organisations through the formation of a Committee

responsible for the management of Watershed areas. However, this Committee has met only once since the adoption of the Regulation in 1992.

The NEMS which is administered by the Department of Lands, Survey and Environment attempts to provide a planned and systematic approach to the integration of development and environmental concerns. It also establishes the framework and recommends guidelines for national policies.

Conclusion

In the Forestry Sector, forest production and contribution is restricted to local timber demand and market. The total contribution of the forestry sector in terms of monetary and social gain is not properly accounted for nor documented. Apart from the small revenue generated as government tax, and the amount paid to landowners as timber royalties, there is nothing else. The overall cost and value of forestry sector in terms of how much it is worth now, and how and where it can effectively contribute to the country as a whole in the future remains a question to be answered. We do hope that with the good implementation of these policies, programmes and projects therefore be able to achieve a sustainable production of Samoa's not only timber resources in the long run. But also the other non-wood forest products. And most importantly is the realisation of the overall importance of the forests to the people of Samoa.

Notes

- ¹ Martel F. 1996 "Review of the Indigenous Forestry and Agro-forestry for Samoa and Niue. Final report ; Pacific Regional Forestry Project.
- ² WCED 1987. World Commission on Environment and Development. "Report on Our Common Future".
- ³ Mussong (1998) "Preliminary proposal for a silviculturally oriented tree selection system and further activities for the implementation of a management system for the sustainable use of natural forests in Western Samoa, Samoa MAFFM / PGRFP, technical report no. 32.
- ⁴ Smyth, A. J. and Dumanski J. 1994. An International Framework for Evaluating Sustainable Land Management. FAO Discussion Paper.
- ⁵ Gibbs Australia (1985). "Basic map reading for the Samoa Island"
- ⁶ Chandler, Larson and Wallis 1978. Report on the "Forest Inventory for Samoa" basically on the Island of Upolu but not including Savaii.
- ⁷ Groome Poyry 1994. Review of the New Zealand Bilateral Aid Programme on its Reforestation Project in Samoa.
- ⁸ Iakopo M. and Suaesi T. 1998 . Samoa Sustainable Forest Management Programme Progress Report, Division of Forestry. MAFFM 1998.
- ⁹ GTZ: German Technical Assistance on Sustainable Forest Management for the Pacific Region.
- ¹⁰ Mensuration: Terminology used for measurements of trees based on volumes, height and diameter.