

VANUATU

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Introduction

Mangrove ecosystems of Vanuatu cover an estimated 2,500-3,500 ha, 0.2%-0.3% of the total land area (12,190 square kilometres). Sizable stands occur on only nine (9) of the eighty (80) islands in the archipelago - Hiu, Ureparapara, Vanualava, Motalava, Malekula, Epi, Emae, Efate and Aniwa. The largest stands, some 2,000 ha in total, occur in two localities at Malekula - the Port Stanley/Crab Bay area and the Maskelyne Islands/Lamap area. You can see on the map of Vanuatu, the presence of mangroves on these islands.

Inventory of the Status of Mangrove Wetlands in Vanuatu

Vanuatu has only about 2,500 ha of mangroves, with nearly 2,000 ha found in eastern Malekula. The remainder exists in small stands of 15-210 ha on other islands (Figure 1).

Figure 1. Area Distribution of the Main mangroves in Vanuatu Archipelago

<i>Island</i>	<i>Area of Mangrove (%)</i>		<i>Area of Island (%)</i>	
Malekula	1,975	(78.0)	205,300	(1.0)
Hiu	210	(9.0)	5,280	(4.0)
Efate	10	(4.0)	92,300	(0.1)
Emae	70	(3.0)	3,280	(2.1)
Epi	60	(3.0)	44,500	(0.1)
Vanualava	35	(2.0)	33,100	(0.1)
Ureparapara	30	(1.0)	3,900	(0.8)
Motalava	25	(1.0)	3,100	(0.8)
Aniwa	15	(0.5)	800	(1.9)
<i>Total</i>	<i>2,460</i>		<i>391,560 (0.6)</i>	

Source: David and Cilaurren 1988.

In Vanuatu, thirteen major mangrove tree species have been identified in eight families, for example *Rhizophora*, *Bruguiera*, *Ceriops*, *Sonneratia*, *Lumnitzera* and *Avicennia*. *Avicennia* and *Rhizophora* are the most common. The species are *Heritiera littoralis*, *Exocoecaria agallocha*, *Xylocarpus granatum*, *Ceriops tagal*, *Rhizophora sylosa*, *R. mucronata*, *R. apiculata*, *Bruguiera gymnorhiza*, *B. parviflora*, *Avicennia marina*, *Sonneratia caseolaris*, *S. alba* and *Lumnitzera littorea*.

Mangroves in Vanuatu like in other countries of the South Pacific are an important source of fuel wood, building materials, medicine, fish, crabs and shellfish and are a critical component of subsistence fisheries. They are at risk from excessive firewood collection and in some places like Malekula and Efate they are at risk from planned development projects.

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General Description of the Physical, Hydrological and Ecological Features of Mangrove Wetlands

Mangroves are bushes or trees that grow between the low tide and high tide mark. This region is called the intertidal zone. The word mangrove has two meanings: the individual trees as mangroves or the description of the whole community of mangrove trees. Mangroves mainly occur in the tropics on sheltered shores and in estuaries, but they can also grow on sand and volcanic soils.

There are two types of mangrove environments:

- a) River environment: These occur along rivers and streams with a large freshwater input. There are usually many mangroves near the coast but as you move upstream the area is covered with more forest plants.
- b) Marine environment: These occur along coastlines or in estuaries that have little freshwater input. Most of the water in marine mangrove systems comes from the sea. There is a change from mangroves to forest as you move inland.

Mangrove trees form part of a large ecosystem. The mangrove ecosystem is made of many parts.

- the mangrove trees themselves
- animals and plants living on the mangrove trees
- animals living under the bark and inside dead mangroves;
- animals and plants living on the surface of the surrounding mud and sand
- animals living under the mud and sand
- animals and plants living in the water surrounding the mangroves at high tide
- animals and plants living in associated streams and channels
- birds and flying foxes roosting in the mangroves
- birds feeding around the mangroves

Some of the mangrove animals and plants are also common in other areas such as coral reefs. However, some are found only in mangrove areas.

Has MangroveWetland Loss Occurred

Mangrove ecosystems in Vanuatu, as elsewhere in the world, are extensively utilised by man and valued for their in situ goods and services. As mentioned above, mangroves are an important source of fuelwood, building materials, medicine, fish, crabs and shellfish.

Some patches of mangrove forest such as on Efate and Malekula have been cleared and reclaimed in the past few years to cater for development projects such as tourism and wharf facilities.

The harvest of mangrove for fuelwood is becoming a common problem in Vanuatu. Villages usually situated within the mangroves on smaller islands are almost entirely dependent on mangrove for fuelwood and building materials. On smaller offshore islands such as the Maskelynes of South Malekula, an average of 15-24 bundles per month of mangrove wood per household is burned as fuelwood.

Harvest of mangrove dependent fisheries products for subsistence and semi-subsistence purposes is common too at the village level. Villages located within or in close proximity to mangroves rely on the mangrove ecosystem for their subsistence fishing. The common

finfish species targeted include the mullet species; rabbit fish - Siganidae species; goatfish - Mullidae species. David and Cilaurren (1988) noted that in the Maskelyne Islands 66 species belonging to 36 families of finfish were caught regularly from the mangrove areas.

The true mangrove crab, *Scylla serrata* locally known as "Caledonian Crab" or "basu" is caught in the estuarine area around the Port Stanley region and on the Maskelyne Islands. These are often caught specifically to supply restaurants and hotels in Port Vila and Luganville. Very few households are involved in the sale of the Caledonian crab.

The extensive usage of mangrove resource as mentioned above is a direct result of high population growth in relation to the very limited resources available, especially on small islands, and the need to accommodate development projects on the island.

Institutional Arrangements for Mangrove Wetland Management

A systematic system of management of mangroves does not exist in Vanuatu, a feature common to many Pacific Islands. However, currently, all mangrove management matters are taken care of by the Fisheries Department and the Environment Unit.

There has been very little research and training in the area of mangroves in Vanuatu. There is currently no local person who is trained to undertake researches on mangroves. A French Scientific Research Institute for Co-operative Development (ORSTOM) has undertaken some research on mangroves and the subsistence fishing uses with no local training. In 1988, a local by the name David Esrom with his expatriate colleague (Cilaurren) did a brief survey and report on mangrove usage in Port Stanley, Malekula. In 1998, the Environment Unit produced a poster on the usage of mangroves in Vanuatu that has been widely distributed especially to the mangrove communities. Apart from these, there has never been any extensive research on the mangroves of Vanuatu.

Mangrove Wetland Policies and Legislation

The Forestry Act 1982 and Fisheries Act 1982 provides for the management and utilisation of coastal forest products on a sustainable basis. Mangrove products are obviously included in the list of coastal products.

In 1991, under the traditional conservation practices, a Marine Reserve was established on Malekula. The area which is commonly known as Narong Marine Reserve, covers an area of approximately 160 hectares. All marine resources within the reserved areas are strictly prohibited for collection, consumption and damage at any time. This includes the exploitation of mangrove stands within the area.

Currently there are no formal mangrove wetland policies or legislation in Vanuatu. A National Mangrove Management Plan was formed in 1988 but no longer exists now. The government now relies on existing institutional mechanisms to address mangrove management issues arising from development on custom land.

Even though the government does not have a formal policy on commercial logging of mangroves, the Environment Unit and the Fisheries Department have adopted an informal policy of not allowing logging of mangroves or large scale reclamation of mangrove areas for alternative uses.

Tenure Ownership of Mangrove Wetlands

Mangrove wetlands are traditionally owned by the custom landowners. Any development on custom land requires the non-owners to obtain a lease from custom land owners. Negotiations of leases for tourism development, forestry, agriculture, etc. is handled by the Department of Lands. Proposals for physical development involving actual alienation of land for a period of time (such as hotel development) are deliberated by the Rural Alienated Lands Committee (RALC). Environment Impact Assessment (EIA) is only required for large-scale projects. However, EIA requirements are not currently based on any legislation. A lease is issued subject to restrictions stipulated by the Department of Lands and a number of covenants have been developed. Under the Land Lease Act 1983, one of the covenants included in the standard form of commercial lease is the provision that the commercial lessee agrees not to fell or otherwise destroy mangroves growing on the stated land.

Community-Based Management Structures for Natural Resource and Mangrove Wetland Management

Although destruction of mangroves is becoming a problem in the mangrove growing areas in Vanuatu, traditionally people and landowners of those areas know themselves that mangroves are very important to their livelihood. It is obvious that clearing of mangroves is done purposely for firewood, building materials, expansion of villages and easier access to the sea. Apart from these, the chiefs and the landowners will never allow people to clear the mangroves unnecessarily. In some areas the chiefs place a temporary ban on the mangrove wetlands to allow the mangroves and other related species which they depend upon for food, to recover.

Mangrove Wetland Monitoring System

Currently, Vanuatu does not have a mangrove wetland monitoring system in place yet. It is something that needs to be considered in the near future.

Awareness on the Importance of Mangrove Wetlands

In the past few years, the Environment Unit and Fisheries Department have done community awareness on mangrove wetlands. This is still an on-going programme. The target communities are the mangrove-related communities, and this is normally done through visiting and holding a meeting within the communities. Sometimes public awareness on mangrove wetlands is done through Radio Vanuatu for the general public. As mentioned earlier, a special poster on the usage of mangroves produced by the Environment Unit in 1998 has also been widely distributed to the mangrove-related communities and the general public.

Mangrove wetland education is an important subject to teach to young children. This subject is currently included in the environment studies curriculum so students from both primary and secondary schools in Vanuatu now learn about mangrove wetlands.

Examples of community involvement in wetland management are the Narong Marine Reserve and Uri Island Reserve, both of which are located in Malekula. In the early 1990s under the traditional conservation practices, these two marine reserves were established. Narong Marine Reserve covers an area of about 160 hectares.

Involvement of Other Sectors in Mangrove Wetland Management

Several NGOs in Vanuatu have done some general awareness in the mangrove-related communities on the importance of protecting the mangrove ecosystem, for example, FSP Vanuatu (Foundation for the Peoples of the South Pacific), World Vision, NKDT (National Community Development Trust) and WSB (Wan Smol Bag) Theatre. This awareness raising by the NGOs has contributed a lot to the overall management of mangrove wetlands in Vanuatu.

Current Situation Regarding Use of Mangrove Wetlands (agriculture, forestry, eco-tourism, aqua-culture)

Apart from fisheries products and mangroves exploited for household consumption and use, the mangroves of Vanuatu are not commercially exploited. Occasional requests for logging permits have been received by the Forestry Department and Environment Unit, but to date they have always been rejected.

Agriculture has not yet occurred to any significant extent in mangrove growing areas. In some localities the landward fringes have been converted for agricultural uses such as coconut plantations. In other areas, most notably the Maskelynes, some mangroves have been removed to allow for village expansion.

There is currently no conversion of mangroves to mining and aquaculture. There are potentialities for these to occur on Malekula in the near future when the need arises.

At present, development pressures on mangroves are small, partly because the main urban centres are away from the major mangrove resource. The largest concentration of mangroves in Vanuatu is found on the island of Malekula while major developments are on the islands of Efate and Espiritu Santo. Irreversible conversions of mangrove forests for urban development has only recently occurred, and is largely localised and on a very small scale. Tourism development is particularly on the south east of Efate.

Status of Adoption of Multi-lateral Biodiversity Conservation Conventions (RAMSAR Convention, Kyoto Protocol, and Convention on Biological Diversity)

Vanuatu signed the Convention on Biological Diversity (CBD) in 1992 and ratified it in 1993. As part of its obligation to CBD Vanuatu has produced a national biodiversity conservation strategy in November 1999 in which there is mention of the protection and sustainable use of mangroves. The Kyoto Protocol has already been signed and submitted to the UN Climate Change Secretariat. The RAMSAR Convention has not been signed yet but Vanuatu is in the process of formalising its accession. Vanuatu has signed and acceded to CITES and ITTO (International Tropical Timber Organisation), both of which have some provisions for the management of mangrove resources and other related species. The Forestry Department has also included in the Forest Policy a section on the protection and sustainable use of mangroves.