



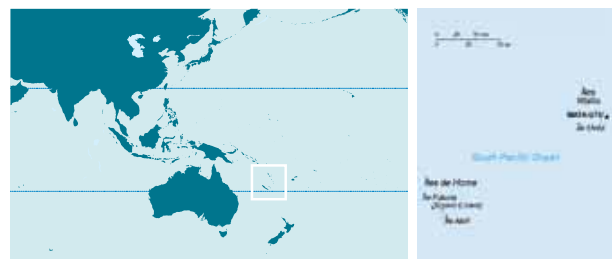
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Wallis and Futuna



4.4 Wallis and Futuna (France) OCT

Number of islands:	3 main islands and several islets
Population:	16 448 inhabitants (2008)
Area:	142 km ²
Population density:	115 inhabitants / km ²
GDP/inhabitant:	2 000 €/ inhabitants (2004)
Unemployment rate:	n/a
Economic activities:	Agriculture and livestock



Wallis and Futuna is a French overseas territory situated mid-way between New Caledonia and Tahiti. It consists of two distinct archipelagos, 230 kilometres apart: the Wallis archipelago, whose central island is Uvea (78 km²) and the Horn archipelago, made up of the Islands of Futuna (46 km²) and Alofi (18 km²). Uvea is a low-lying island with a single cliff, Lulu Faka, which rises to 151 metres. Futuna, on the other hand, has steep slopes and high mountains, including Mount Puke (524 metres). The territory's exclusive economic

zone extends over 266,000 km². The economy of Wallis and Futuna is mainly based on agriculture and livestock rearing for local consumption. For the most part, the inhabitants of the island do not have access to the monetary economy. Close to 70% of those who are employed, work for the local public administration. Tourism is largely undeveloped, like the private sector, which employs about 1,000 people in the retailing sector, the mother-of-pearl craft industry and lagoon fishing.

4.4.1 Current state of biodiversity

Remarkable habitats and species



Coral reefs of the territory are largely unexplored

Wallis and Futuna's biodiversity is relatively limited. This is because these islands are geologically very young (2 million years) and have a limited surface. Tropical forests once covered practically all the islands; today they cover a little less than 10% of the surface (Meyer, personal

communication). There are only a few remaining strips of forest in Wallis. Today, the island's coverage consists for the most part of more or less degraded secondary forest (bushy thickets) made up of moors of *Dicranopteris* (fork fern) called toafa, and cultivated and fallow land. The territory is home to 350 species of vascular plants of which only seven are endemic. The bird life is relatively poor with 25 nesting species, 15 of them terrestrial and 10 of them marine species. Wallis has a barrier reef 63 km² long and a lagoon of 200 km². Futuna and Alofi have no lagoon, but an apron reef some 100 metres wide on average. The territory has 52 types of coral, 648 species of fish and 310 species of molluscs (Gargominy, 2003). The coral reefs of the territory are largely unexplored.

Current threats

The territory's foremost environmental problems are erosion and loss of soil fertility in Futuna, resulting from slash-and-burn agriculture. Small-holder farmers burn their fields after the harvest thereby contributing to the disappearance of the top soil. The nutrients and organic matter contained on the sloping hillsides of the island are carried off to the sea (this is especially true of Futuna) and the resulting sedimentation leads to important degradation of the reefs. Turbidity and eutrophication caused by erosion are among the causes of this degradation. Some traditional fishing methods too are destructive for the marine environment. Added to this is the over-exploitation of fish stocks in certain areas (Salvat, personal communication).



Coconut trees degradation with erosion in Wallis

4.4.2 New threats resulting from climate change

Impacts on biodiversity

The most serious effect of climate change on the biodiversity of Wallis and Futuna is probably coral bleaching caused by rising water temperatures. The magnitude of the bleaching is difficult to gauge as the territory's reefs have not been widely studied. They have only been monitored since 1999. Significant coral bleaching was observed to a depth of 20 metres in 2003, but no evaluation of the mortality rate was carried out (Vieux, 2004). A rise in sea level could affect the mangroves and the coastal ecosystems of the territory. The first signs of coastal erosion were observed in Wallis with the

disappearance of a number of beaches and the uprooting of coconut trees. That said, however, it is difficult to state with certainty that there is a link between these isolated cases of erosion and rising sea levels. These incidents of erosion could equally be the result of the suppression of the mangroves, the extraction of sand by the local population, or changes in sea currents. The projected increase in sea levels could also impact upon the wetland areas of the territory. A rise in the water level in the aquifers could reduce the fresh water supply in the water table. This would in all likelihood lead to changes in the distribution of vegetation throughout the territory (similar to those observed on the Islands of Tuvalu) (Ferraton, personal communication). Indeed, a number of plants obtain their water directly from the water table.

Box 4.11: Potential Submersion of the Coastal Areas of Wallis and Futuna

The IPCC estimates that there will be a rise in the global sea level of between 0.23 and 0.47 metres between now and the end of the century (this projection does not include the potential sea level rise generated by ice melt). Projections for Wallis and Futuna are similar. Some low-altitude coastal zones are likely to suffer serious erosion, temporary flooding in the event of tropical storms, and in some cases, permanent submersion. An exercise in modelling to illustrate the potential submersion of the Island of Uvea was carried out by the Territorial Services for Rural Affairs and Fishing (STARF); it used a range from 0.5 to 3 metres. This study showed that several hundred seaside homes in Uvea would be at threat from a rise in the sea

level of only 0.5 metres. Several measures have been implemented at a local level to combat erosion: shoring up the sea front (Vaitapu), construction of protection walls (Gahi Bay), natural shoring using building debris (Liku), and planting hedges of vetiver grass (Vaitapu) (photos). While these initiatives help to limit coastal erosion on a local and temporary basis, they will not provide long-term protection against a significant rise in sea levels. The potential submersion of urban areas would seriously affect the economy of the territory, and lead to the displacement the population towards the interior and towards the last remaining natural areas on these islands.



Circulation of fresh water on a traditional taro flooded plantation

N. Ferraton

Socio-economic implications

A rise in the sea level around Wallis and Futuna could lead to the submersion of certain inhabited coastal areas. Topographic modelling carried out by the Territorial Services for Rural Affairs and Fishing (STARF), allows a visualization of the partially submerged land areas (Box 4.11). A rise in sea level could also have an impact on agriculture, particularly the Taro plantations,

situated in the wetlands back from the coastal areas (Box 4.12). Finally, salt water infiltration into the water table is likely to put greater pressure on Wallis and Futuna's already limited freshwater supplies, and to affect the local population.

Box 4.12: Climate Change and Agriculture: The Case of the Wallis and Futuna Taro Plantations

Subsistence agriculture plays an important role in the economy of Wallis and Futuna. Taro, in particular (*Colocasia esculenta*), a starch-rich root plant, is widely grown on the territory for local consumption. This plant is cultivated in "taro beds", a very elaborate method of cultivation carried out in the flood plains immediately behind the coastal banks. It is in these areas, where the water table skims the land's surface, that taro clippings are planted in small clumps of soil. Large trenches of some 2 to 4 metres deep are then dug around these clumps. These are then filled by the water table. A canal is dug to allow the water from the water table

to flow out to the sea. Over the last few years some farmers in Wallis have noticed an incursion of sea water into the taro plantations during very high tides. Sometimes, dams have even been built to prevent this from happening (photo). Saline infiltration seriously impacts upon the taro crops; it can completely destroy them if the levels of salinity are too high. There have been no accurate assessments of salt water infiltration, and the link with climate change remains to be scientifically proven. However, first observations show that a significant rise in sea level could seriously affect the traditional cultivation of taro in Wallis and Futuna.



Shoring up the sea front (Vaitapu)

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Protection wall (Gahi Bay)

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Shoring using building debris (Liku)

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Hedges of vetiver grass (Vaitapu)

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