



# Overseas Countries and Territories: Environmental Profiles

## FINAL REPORT

PART 2 – DETAILED REPORT

SECTION D – PACIFIC REGION

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Consortium



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## ABBREVIATIONS AND ACRONYMS

|             |   |
|-------------|---|
| ACAP        | Agreement on the Conservation of Albatrosses and Petrels  |
| ACOR        | Association Française pour les Récifs Coralliens  |
| ACP         | Africa Caribbean and the Pacific  |
| ACS         | Association of Caribbean States   |
| AEPS        | Arctic Environmental Protection Strategy  |
| AFD         | French Development Agency   |
| AMAP        | Arctic Monitoring and Assessment Programme  |
| AMOC        | Atlantic Meridional Overturning Circulation   |
| AOSIS       | Alliance of Small Island States   |
| APEC        | Asia–Pacific Economic Cooperation   |
| BAS         | British Antarctic Survey  |
| BEST        | EU Voluntary Scheme for Biodiversity and Ecosystem Services in Territories of European Overseas   |
| BRGM        | Bureau de Recherches Géologiques et Minières  |
| CAFF        | Conservation of Arctic Flora and Fauna  |
| CANARI      | Caribbean Natural Resources Institute   |
| CARICOM     | Caribbean Community   |
| CARIFORUM   | Caribbean Forum   |
| CBD         | Convention on Biological Diversity  |
| CCAMLR      | Convention on the Conservation of Antarctic Marine Living Resources   |
| CCAS        | Convention on Conservation of Antarctic Seals   |
| CCC         | Cod and Climate Change Programme  |
| CCCCC       | Caribbean Community Climate Change Centre   |
| CDB         | Caribbean Development Bank  |
| CDEMA       | Caribbean Disaster Emergency Management Agency  |
| CDS         | Catch Documentation Scheme  |
| CEHI        | Caribbean Environmental Health Institute  |
| CIDA        | Canadian International Development Agency   |
| CITES       | Convention on International Trade in Endangered Species   |
| CMS         | Bonn Convention on Migratory Species  |
| CNRS        | Centre National pour la Recherche Scientifique  |
| COLTO       | Coalition of Legal Toothfish Operators  |
| COMESA      | Common market for Eastern and Southern Africa   |
| CoP         | Conference of the Parties   |
| CPA         | Country Poverty Assessment  |
| CPACC       | Caribbean Planning for Adaptation to Climate Change   |
| CR          | Critically endangered (IUCN classification)   |
| CRAMRA      | Convention on the Regulation of Antarctic Mineral Resource Activities   |
| CRISP       | Coral Reefs in the South Pacific  |
| CROP        | Council of Regional Organizations of the Pacific  |
| CSD         | Commission on Sustainable Development   |
| CSME        | Caribbean Single Market and Economy   |
| Darwin Plus | Fuses OTEP and Darwin (OCT component) in what concerns competitive funding to deliver long-term strategic outcomes for the natural environment in the UK's Overseas Territories |
| DCNA        | Dutch Caribbean Nature Alliance   |
| DEFRA       | Department for Environment, Food and Rural Affairs of UK government   |
| DFID        | DEPARTMENT FOR INTERNATIONAL DEVELOPMENT of UK government   |

|          |  |
|----------|--|
| DK       | Denmark  |
| DPSIR    | Driver, Pressure, State, Impact and Responses  |
| ECCB     | Eastern Caribbean Central Bank   |
| EDF      | European Development Fund  |
| EE       | Energy efficiency  |
| EEZ      | Exclusive Economic Zone  |
| EIA      | Environmental Impact Assessment  |
| EIB      | European Investment Bank   |
| EN       | Endangered (IUCN classification)   |
| ENSO     | El Niño Southern Oscillation   |
| EPA      | Economic Partnership Agreement   |
| EPD      | Environment, planning and development  |
| EPPR     | Emergency Prevention, Preparedness and Response                                      |
| EU       | European Union   |
| FAO      | Food and Agriculture Organisation  |
| FCO      | Foreign & Commonwealth Office UK Government  |
| FEA      | Fonds pour l'Environnement et l'Agriculture  |
| FR       | France   |
| GCRMN    | Global Coral Reef Monitoring Network   |
| GDP      | Gross Domestic Product   |
| GEF      | Global Environment Facility  |
| GGF      | Good Governance Fund   |
| GHG      | Greenhouse Gas   |
| GIWA     | Global International Water Assessment  |
| GLIPSA   | Global Islands Partnership   |
| HMS      | His Majesty's Ship   |
| I&M      | Dutch Ministry of Infrastructure and Environment                                     |
| IAATO    | International Association of Antarctica Tour Operators                               |
| IAC      | Inter-American Convention for the Protection and Conservation of Sea Turtles         |
| IBA      | Important Bird Area  |
| IBRD     | International Bank for Reconstruction and Development                                |
| ICCAT    | International Commission for the conservation of tuna-like fish in the Atlantic      |
| ICES     | International Council for the Exploration of the Sea                                 |
| ICES-CCC | ICES Cod and Climate Change Programme  |
| ICRI     | International Coral Reef Initiative  |
| IDB      | Inter-American Development Bank  |
| IFRECOR  | Initiative Française pour les Récifs Coralliens                                      |
| IIED     | International Institute for Environment and Development (UK)                         |
| IMF      | International Monetary Fund  |
| INTEGRE  | Initiative des Territoires du Pacifique pour la gestion régionale de l'environnement |
| IOC      | Indian Ocean Commission  |
| IPCC     | International Panel on Climate Change  |
| IRD      | Institut de Recherche pour le Développement (FR)                                     |
| IUCN     | International Union for Conservation of Nature                                       |
| IUU      | Illegal unregulated and unreported fishing   |
| JCNB     | Joint Commission on Narwhal and Beluga   |
| JNCC     | Joint Nature Conservation Committee UK Government                                    |
| LPO      | Ligue pour la Protection des Oiseaux   |
| LSB      | Landbased Sources of Marine Pollution (protocol of the Cartagena Convention)         |
| MAB      | Man and Biosphere (Reserve)  |
| MACC     | Mainstreaming Adaptation to Climate Change   |
| MDGs     | Millennium Development Goals   |

|        |  |
|--------|--|
| MEA    | Multilateral Environmental Agreement                                 |
| MoU    | Memorandum of Understanding  |
| MPA    | Marine Protected Area  |
| MSC    | Marine Stewardship Council   |
| MSP    | Marine Spatial Planning  |
| n.a.   | not available  |
| NAFO   | North Atlantic Fisheries Organisation                                |
| NAMMCO | North Atlantic Marine Mammal Commission                              |
| NBSAP  | National Biodiversity Strategy and Action Plan                       |
| NEMS   | National Environmental Management Strategy                           |
| NGO    | Non-governmental organization  |
| NL     | Netherlands  |
| NNR    | National Nature Reserve  |
| NT     | National Trust   |
| NZ     | New Zealand  |
| OAD    | Overseas Association Decision  |
| OAU    | Organisation of African Unity  |
| OCTA   | Overseas Countries and Territories Association                       |
| OCTs   | Overseas Countries and Territories                                   |
| OECD   | Organisation for Economic Co-operation and Development               |
| OECS   | Organisation of Eastern Caribbean States                             |
| OT     | Overseas Territories (commonly used in texts from the UK)            |
| OTCF   | UK Overseas Territories Conservation Forum                           |
| OTEP   | Overseas Territories Environment Programme (replaced by Darwin Plus) |
| PAME   | Protection of the Arctic Marine Environment                          |
| PCCFAF | Pacific Climate Change Finance Assessment Framework                  |
| PECCO  | Pacific Environment and Climate Change Outlook                       |
| PEP    | Poverty and Environment Partnership                                  |
| PGA    | Plan Général d'Aménagement   |
| PGEM   | Plan de Gestion de l'Espace Maritime                                 |
| PID    | Pacific Islands Development Programme                                |
| PILN   | Pacific Invasives Learning Network                                   |
| PIP    | Pacific Invasives Partnership  |
| PNG    | Papua New Guinea   |
| POP    | Persistent Organic Pollutant   |
| PPCR   | Pilot Program for Climate Resilience                                 |
| PROE   | Programme régional océanien de l'environnement                       |
| PWSD   | Public Works and Services Department                                 |
| RE     | Renewable Energy   |
| RFMO   | Regional Fisheries Management Organisation                           |
| RIP    | Regional Indicative Programme  |
| RSP    | Regional Seas Programme or Regional Strategy Paper                   |
| RSPB   | Royal Society for the Protection of Birds                            |
| SADC   | Southern Africa Development Community                                |
| SAERI  | South Atlantic Environmental Research Institute                      |
| SAWG   | South Atlantic Working Group (of the UK OTCF)                        |
| SCOR   | Scientific Committee on Oceanic Research                             |
| SCP    | Strategic Country Programme  |
| SD     | Sustainable Development  |
| SDP    | Sustainable Development Plan   |
| SEA    | Strategic Environmental Assessment                                   |
| SEAFO  | South-East Atlantic Fisheries Organisation                           |

|          |   |
|----------|---|
| SIDS     | Small Island Developing States  |
| SIDSnet  | Small Island Developing States Information Network  |
| SME      | Small and Medium Enterprises  |
| SOPAC    | South Pacific Applied Geoscience Commission   |
| SORP     | Southern Ocean Research Partnership   |
| SPA      | Specially Protected Area  |
| SPAW     | Protocol concerning Specially Protected Areas and Wildlife                                    |
| SPC      | Secretariat of Pacific Community  |
| SPD      | Single Programming Document   |
| SPREP    | South Pacific Regional Environment Programme  |
| SPT      | South Pacific Tourism Organisation  |
| STZC     | Sustainable Tourism Zone of the Caribbean   |
| TAC      | Total Allowable Catch   |
| TAO      | Territorial Authorising Officers  |
| TEP      | Tonne Equivalent Pétrole (TEP Vertes is a climate change mitigation programme in the Pacific) |
| UK       | United Kingdom  |
| UKAHT    | United Kingdom Antarctic Heritage Trust   |
| UKOTA    | Association of OCT linked to the UK   |
| UKOTCF   | United Kingdom Overseas Territories Conservation Forum  |
| UN       | United Nations  |
| UNCED    | United Nations Conference on Environment and Development                                      |
| UNDP     | United Nations Development Programme  |
| UNECE    | United Nations Economic Commission for Europe   |
| UNECLAC  | United Nations Economic Commission for Latin America and the Caribbean                        |
| UNEP     | United Nations Environment Programme  |
| UNESCO   | United Nations Educational, Social and Cultural Organisation                                  |
| UNFCCC   | United Nations Framework Convention on Climate Change   |
| UNFPA    | United Nations Population Fund  |
| VMS      | Vessel Monitoring System  |
| VROM     | Netherlands environment ministry  |
| VU       | Vulnerable (IUCN classification)  |
| WH       | World Heritage  |
| WIDECAST | Wider Caribbean Sea Turtle Conservation Network   |
| WRI      | World Resources Institute   |
| WTO      | World Trade Organisation  |
| WWTP     | Wastewater Treatment Plant  |

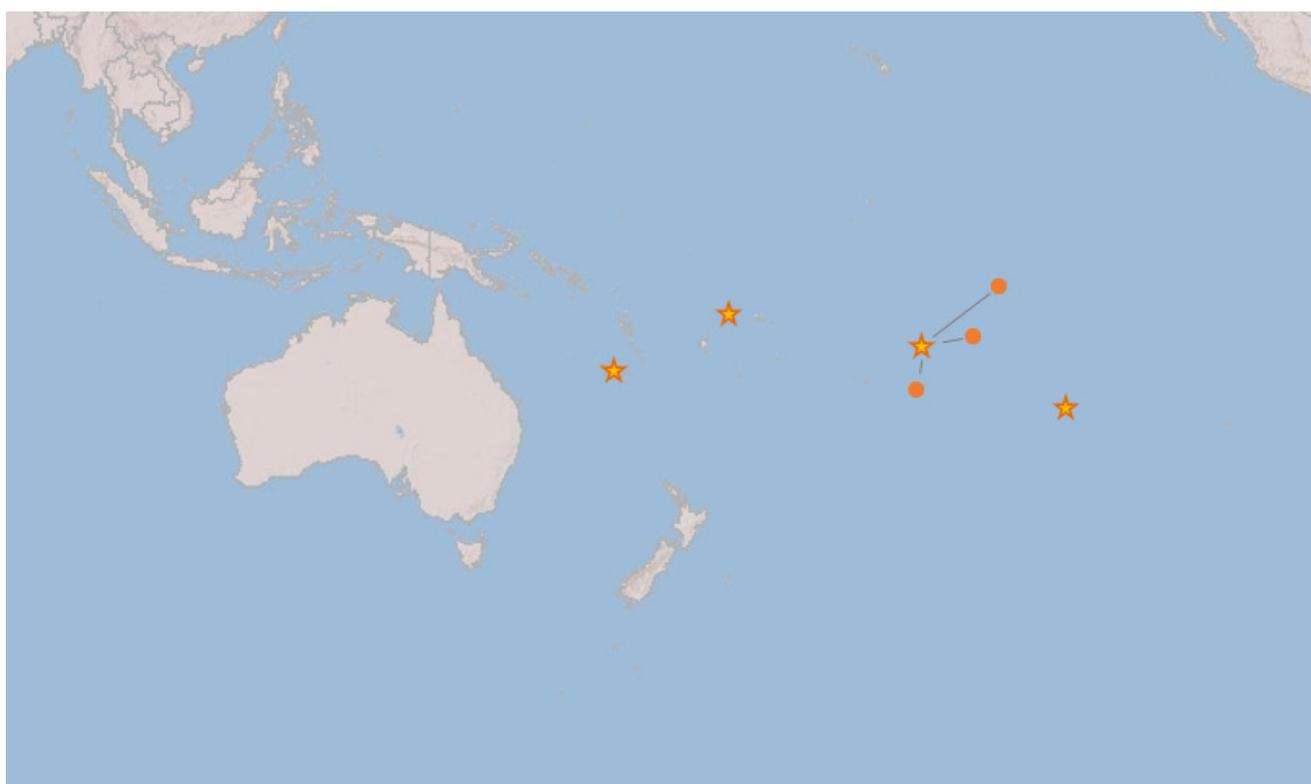
|        |   |
|--------|---|
| AI     | Ascension Island                          |
| ANG    | Anguilla                                  |
| ARU    | Aruba                                     |
| BAT    | British Antarctic Territory               |
| BIOT   | British Indian Ocean Territory            |
| BLM    | Saint Barthelemy                          |
| BM     | Bermuda                                   |
| BON    | Bonaire                                   |
| BVI    | British Virgin Islands                    |
| CAY    | Cayman Island                             |
| CUW    | Curaçao                                   |
| FLK    | Falkland Islands                          |
| FP     | French Polynesia                          |
| GL     | Greenland                                 |
| MSR    | Montserrat                                |
| NC     | New Caledonia                             |
| PIT    | Pitcairn                                  |
| SAB    | Saba                                      |
| SGSSI  | South Georgia and South Sandwich islands  |
| SH     | Saint Helena                              |
| SHATdC | St Helena, Ascension and Tristan da Cunha |
| SPM    | St Pierre and Miquelon                    |
| StEus  | Sint Eustatius                            |
| SXM    | Sint Maarten                              |
| TAAF   | French Southern and Antarctic Territories |
| TCI    | Turks and Caicos islands                  |
| TdC    | Tristan da Cunha                          |
| W&F    | Wallis and Futuna                         |

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# REGIONAL ENVIRONMENTAL PROFILE

## PACIFIC



## 1 INTRODUCTION

This volume is part of a 6-volume report made at the request of the European Commission. It presents environmental profiles for the four overseas countries and territories (OCTs)<sup>1</sup> in the Pacific region. There are companion volumes for the OCTs in the Caribbean, North Atlantic, South Atlantic and Indian Ocean regions. The purpose of the environmental profiles is to feed discussions on the environment and possible consequences environmental trends may have on OCTs socio-economic development, and more specifically, to assist the EU in programming its EDF assistance to the OCTs.

This volume comprises an overall profile in which the territories are treated in the context of the Pacific Ocean as a whole with the individual profiles for the four OCTs in this region forming Annexes A to D. The regional findings are brought together and consolidated in Part 1 - Main Report.

## 2 DESCRIPTION OF THE REGION

We here regard the Pacific region as comprising Micronesia, Melanesia, Polynesia and the South Pacific.

There are four OCTs in the Pacific Ocean region:

- French Polynesia (FP), New Caledonia (NC), Wallis and Futuna (W&F), which are linked to France; and
- Pitcairn (PIT) which is linked to the UK.

Apart from these four OCTs, the Pacific Ocean region comprises:

- 13 independent island nations: Federated States of Micronesia, Fiji, Kiribati, Nauru, Palau, Papua New Guinea, Samoa, Solomon Is, Timor Leste, Tonga, Tuvalu, Vanuatu.
- Other non-sovereign territories: American Samoa, Guam, Howland Is, Jarvis Is, Kingman Reef, Marshall Is, Northern Mariana Is (all USA territories), Niue, Tokelau and Cook Is (self-governing but linked to New Zealand).
- Larger countries in the region: Australia, New Zealand. Japan and Indonesia participate in some of the regional organisations.

The islands in the Pacific are generally either high islands or lower-lying coral limestone islands or still lower-lying atolls. This geographic and topographic diversity also applies to the 4 Pacific OCTs. New Caledonia is an ancient and rocky island of continental origin. It has mountains, a 1,600 km long barrier reef and 40,000 km<sup>2</sup> of lagoons, the Loyalty Islands are coral and limestone on ancient collapsed volcanoes. French Polynesia includes five archipelagos with four volcanic such as Tahiti (recent basaltic volcanic island), and one low-lying coral-limestone, the Tuamotu Islands. Wallis and Futuna are of volcanic origin with smaller coral islands scattered around the low-lying island of Wallis (highest mountain 150 m). While Wallis is endowed with a large lagoon system, the much higher island of Futuna (765 m) is characterized by steep slopes and absence of lagoon habitat. Access to Pitcairn is most difficult because of its steep slopes, direct exposure to the open ocean and lack of natural harbours. The uninhabited islands of Henderson and Oeno, both part of the Pitcairn group, are an unusual elevated and a very low-lying undisturbed atoll respectively.

Coral and barrier reefs, lagoons, mangroves, rocky and sandy beaches and dry forests are the Pacific OCTs most common habitats. They are home to a large number of species of fauna, terrestrial and marine invertebrates and vertebrates and algae.

In April 2014 New Caledonia established the Coral Sea marine protected area (MPA) that encompasses the whole EEZ, as well as the territorial waters and the islands under New Caledonia management,

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<sup>1</sup> The term overseas countries and territories refers to the 25 countries and territories which, although falling within the sovereignty of a Member State of the European Union are wholly or partly autonomous

totalling about 1.3 million km<sup>2</sup>. The park is now amongst the largest MPAs in the world, and has shared responsibility with the French Government. Its creation increases to 16% (from the previous 4%) the rate of waters under French jurisdiction that have MPAs status.

### 3 KEY FACTS AND STATISTICS

| Key facts and statistics for OCTs in the Pacific region |                              |                        |                      |                       |             |                 |
|---|------------------------------|------------------------|----------------------|-----------------------|-------------|-----------------|
| OCT   | Land area (km <sup>2</sup> ) | EEZ (km <sup>2</sup> ) | Population           | inhab/km <sup>2</sup> | GDP/cap (€) | Illiteracy rate |
| FP  | 3,660                        | 5 million              | 268,207              | 73.3                  | 17 933      | 2%              |
| NC  | 18,575                       | 1.42 million           | 256,000              | 13.8                  | 27,650      | 6%              |
| PIT   | 47                           | 836,108                | 52 + 10 <sup>2</sup> | 1.3                   | *           | 0               |
| W&F   | 142                          | 262,500                | 12,197               | 86                    | 10,100      | n.a.            |

\* Dependence on budget support from UK since 2002/3 and also from EU since 9th EDF

Population density varies from 1.3 / km<sup>2</sup> (Pitcairn) to 86 / km<sup>2</sup> (Wallis and Futuna).

| Economy |           |  |                       |   |
|---------|-----------|--|-----------------------|---|
| OCT     | Fisheries | Tourism                                | Hydrocarbon / Mineral | Other   |
| FP      | ●         | ● (7.7 % of GDP in 2011 <sup>3</sup> ) |                       | Fisheries, black pearls culture, agriculture                    |
| NC      | ○         | ○                                      | ● Nickel              | Aquaculture, agriculture, trade                                 |
| PIT     | ●*        | ○                                      |                       | Passenger fares, recovery of freight costs, Stamps (in decline) |
| W&F     | ○*        |  |                       | Agriculture, building and public works, trade                   |

○ Unimportant ○ Artisanal / incidental / mainly for tourists ● Moderate activity ● Major activity  
\* Important for own consumption

Most islands of the Pacific have an economy that is solely based on (limited) natural resources such as fisheries, forestry and agriculture. French Polynesia has succeeded in diversifying its economy by developing tourism, fisheries, aquaculture, the cultivation of black pearls and agricultural products (export commodities) like noni and vanilla. In the period 1998 to 2007, the cumulative value of aquaculture in the region was overwhelmingly dominated by French Polynesia (US\$1.56 Billion, mainly black pearl) and New Caledonia (US\$250 Million, mainly shrimp), representing 95.5% of the value of aquaculture in the region's 22 PICTs.<sup>4</sup> Since 2007 the production of black pearl has declined, but in 2012 FP continued to account for 76% of the value of aquaculture in the region and New Caledonia dominated the shrimp production.<sup>5</sup>

New Caledonia has important mineral resources (mainly nickel, accounting for about 8% of the GDP<sup>6</sup>) that are extracted, processed and exported. Wallis and Futuna and Pitcairn are the least developed of the four OCTs, with a € 10,100<sup>7</sup> per capita income on Wallis and Futuna and a barter economy on Pitcairn (dependent on budget support).

<sup>2</sup> These are non-resident persons, as teachers, medical staff, police, etc.

<sup>3</sup> Court of Auditors – Annual public report 2014 – February 2014

<sup>4</sup> The Pacific Environment and Climate Change Outlook (PECCO) 2012 page 113 (<http://www.sidsnet.org/news/sprep-releases-pacific-environment-and-climate-change-outlook-2012>)

<sup>5</sup> Status report: Pacific Islands reef and nearshore fisheries and aquaculture 2013, SPC and EU, [http://www.spc.int/DigitalLibrary/Doc/FAME/Reports/Anon\\_13\\_Status\\_Report.pdf](http://www.spc.int/DigitalLibrary/Doc/FAME/Reports/Anon_13_Status_Report.pdf)

<sup>6</sup> <http://www.mfat.govt.nz/Countries/Pacific/New-Caledonia.php>

<sup>7</sup> GDP is not readily available and the values most commonly found are either USD 3,800 or € 10,148. The later is provided by <http://www.senat.fr/rap/a11-112-3/a11-112-38.html> and was assumed in the profile.

#### 4 BIOGEOGRAPHY, ENDEMISM, IMPORTANCE FOR GLOBAL BIODIVERSITY

Key figures on biodiversity listed in the tables are extracted from an IUCN study on the French OCTs and several studies on the Pitcairn islands. Pitcairn's biodiversity has been little documented, the marine biodiversity is better known than the terrestrial as it has been focus of recent research. New Caledonia is a biodiversity hot spot. The Pacific Environment and Climate Change Outlook (PECCO) study in 2012 covering 21 PICTs states that the percentage of endemic species amongst the endangered species listed in the IUCN Red List is the highest for French Polynesia (45%), followed by New Caledonia (33%).<sup>8</sup>

| Terrestrial Biodiversity |                 |               |         |             |             |            |            |                 |          |
|--------------------------|-----------------|---------------|---------|-------------|-------------|------------|------------|-----------------|----------|
| OCT                      | Flora           | Invertebrates |         |             | Vertebrates |            |            |                 |          |
|                          | Vascular plants | Molluscs      | Insects | Crustaceans | Fish        | Amphibians | Reptiles   | Birds (nesting) | Mammals  |
| FP                       | 885<br>(551)    | 525<br>(-)    | >1000   | 20          | 37<br>(14)  | -          | 12<br>(9)  | 36<br>(27)      | (0)      |
| NC                       | 3371<br>(2518)  | 205<br>(205)  | >4500   | 106         | 103<br>(11) | 1<br>(0)   | 95<br>(84) | 115<br>(21)     | 9<br>(6) |
| PIT                      | 144<br>(19)     | 26            |         |             |             |            |            | 13<br>(6)       |          |
| W&F                      | 351<br>(7)      | 34<br>(11)    |         | 18          | 16<br>(4)   | 1<br>(0)   | 16<br>(15) | 15              | 12       |

| Marine and Coastal Biodiversity |            |               |          |             |             |          |                 |         |
|---------------------------------|------------|---------------|----------|-------------|-------------|----------|-----------------|---------|
| OCT                             | Flora      | Invertebrates |          |             | Vertebrates |          |                 |         |
|                                 | Algae      | Corals        | Molluscs | Crustaceans | Fish        | Reptiles | Birds (nesting) | Mammals |
| FP                              | 425<br>(2) | >190          | 2414     | 1013        | 1214        | 6        | 27              | 24      |
| NC                              | 443        |               | 3392     | 2500        | 2500        | 20       | 25              | 26      |
| PIT                             |            |               |          |             |             | 2        | 15              | 22      |
| W&F                             | 220        | 182           | ±600     | 258         | 648         | 4        | 10              | 10      |

Aggregated figures based on data listed in Biodiversité d'Outre-Mer, éditions Roger Le Guen, Comité français de l'UICN, 2013. In brackets, the number of endemic species.

| Protected Areas |  |  |  |       |                                      |  |
|-----------------|--|--|--|-------|--------------------------------------|--|
| OCT             | Marine   | Terrestrial                                | Unesco Heritage  | World | RAMSAR                               | Remarks <sup>9</sup>   |
| FP              | 31 sites / protected areas (reserves, parks, managed areas) - Decree 1485 CM of 27/Sept/2011 |  | 7 atolls (Fakarava district) are "biosphere reserve" under the MAB programme             |       | Moorea lagoon                        | According to SPREP: 4 protected areas, 0.07 % of total land and sea area |
| NC              | 42,000 ha (Province Nord and Province Sud) <sup>10</sup>                                     | 90,000 ha (Province Nord and Province Sud) | Part of the lagoon and the reef (16,000 km <sup>2</sup> ): 6 sites network <sup>11</sup> |       | Les Lacs du Grand Sud néo-calédonien | According to SPREP: 59 protected areas= 1,1 % of total land and sea area |
| PIT             | Proposal by government to create a MPA on 99% of EEZ <sup>12</sup>                           |  | Henderson Island <sup>13</sup>   |       |                                      |  |
| W&F             | 1  |  |  |       |                                      | According to SPREP: 1 protected area, 0.17 % of total land and sea area  |

<sup>8</sup> The Pacific Environment and Climate Change Outlook (PECCO) 2012, pg 135

<sup>9</sup> The Pacific Environment and Climate Change Outlook (PECCO) 2012 pg 135

<sup>10</sup> These data do not include the Province des Iles Loyauté which is a 'Reserve foncière intégrale'.

<sup>11</sup> <http://whc.unesco.org/fr/list/1115>

<sup>12</sup> Proposal submitted to the UK government, who is analysing the request.

<sup>13</sup> <http://whc.unesco.org/fr/list/487>

## 5 STATE OF THE ENVIRONMENT

The main environmental challenges of the Pacific OCTs are:

| Main environmental challenges and problems in OCTs in the Pacific region |   |          |  |               |
|--|---|----------|--|---------------|
| OCT  | Challenge / problem   | Severity | Short description  | Status 2007*  |
| FP   | Climate change  | Severe   | FP is one of Pacific countries/ territories that will suffer most from sea-level rise as most islands are very low lying or have infrastructure on the coast. Impact of sea temperature rise on corals already identified. Cyclones sometimes causing devastation.                                   | S (severe)    |
|  | Degradation of coral reefs and pollution of lagoon                    | Severe   | Coral harvesting among others for use as construction material, overfishing, invasive species (starfish), pollution from households and tourists, black pearl culture, urban sprawl (building of roads, etc. on coral reefs).  | S             |
|  | Nature conservation: species and habitats                             | Severe   | Only 2% of the land area is protected. Many endemic birds are endangered. 30% of the assessed endemic species are under threat. <sup>14</sup>  | Not indicated |
| NC   | Climate change  | Severe   | Changes in the air and water temperature will impact marine ecosystems particularly (mangroves, lagoons and corals). Climate change will also probably result in more frequent and violent cyclones.   | S             |
|  | Pollution and sedimentation of rivers and lagoon                      | Severe   | Some measures taken by the mining industry and administration (mining code) for the quarrying activities.  | S             |
|  | Threats to the rich biodiversity                                      | Severe   | New Caledonia has rich biodiversity but most of the assessed endemic species are under multiple threats, which include the mining industry, habitat loss, introduced predators, invasive species and illegal hunting.  | S             |
| PIT  | Invasive species and other threats to flora and fauna                 | Severe   | Introduced Rose apple, rats and goats are threats to bird and original vegetation. An increase in visitors could mean a greater risk of introducing exotic and invasive species to the islands, and reducing biodiversity. Deforestation for use as fuel and construction material.                  | S             |
| W&F  | Soil erosion and loss of fertility due to poor agricultural practices | Severe   | Measures taken to encourage organic farming but deforestation and stubble burning remove surface cover. This causes soil erosion and loss of fertility.  | S             |
|  | Pollution and sedimentation of the lagoon at Wallis                   | Severe   | Measures taken to improve pig-farming techniques but excrement from pigs and goats still wash into the lagoon, causing bacteriological contamination and eutrophication. Also run-off of soil from land leads to turbidity in the lagoon.  | S             |
|  | Degradation of coral reefs  | Severe   | 25% of corals are at risk and very degraded at Futuna. Coral harvesting for use as construction material. Over fishing and use of destructive fishing methods despite a new programme to reduce pressure on the lagoon from fishing. Pollution of lagoon by households, agriculture and pig farming. | S             |
|  | Climate change  | Severe   | Temperature rise affects coral reefs. Cyclones break and destroy coral cover and subsequent avalanches damage and stifle corals lower down the reef.   | S             |

In differing degrees, the four OCTs have a number of common environmental issues like lack of fresh water, sea surface temperature rise affecting coral reefs, pollution of lagoon and coastal areas due to lack of proper waste (and waste water) management and treatment. Also sea level rise poses a major threat: it will cause loss of land and displace populations to higher grounds or to other islands. More extreme

<sup>14</sup> The Pacific Environment and Climate Change Outlook (PECCO) 2012, page 126

weather events (storms, cyclones) are also an issue. Deforestation, traditional destructive agricultural practices, overfishing/destructive fishing are also common anthropogenic pressures. FP and NC have also pollution problems linked to high population density in urban areas and to mining for NC.

An emerging issue is seabed mining. In a recent report<sup>15</sup>, the French Economic, Social and Environmental Council urges French government to seize the opportunity provided by the Law of the Sea of laying claim to an additional two million square kilometres of seabed, half of which are in French Polynesia. The report states French Polynesia has rare earths, while there is cobalt off Wallis and Futuna and hydrocarbon deposits near New Caledonia. The impacts of the exploration and exploitation of the resources are under debate and a multidisciplinary research programme (MIDAS<sup>16</sup> with a duration of 36 months started in November 2013) investigating the environmental impacts of extracting mineral and energy resources from the deep-sea environment is being financed by Seventh Framework Programme for research. The CNRS and IFREMER has released a report in June 2014<sup>17</sup> on the environmental impacts of exploring seabed mineral resources. At the same time, the pacific region OCTs and ACP countries are strengthening marine spatial planning (see below project PACIOCEA).

## 5.1 BUILT ENVIRONMENT

French Polynesia and New Caledonia are the largest OCTs in terms of land surface, EEZ and population and their environmental situation suffers from much higher pressures as compared to Wallis and Futuna or Pitcairn. In French Polynesia, pressures derive from untreated wastewater flowing into lagoons particularly in areas of high population density, or areas of high concentration of tourists (c. 165,000 tourists in 2013), and result in the destruction of habitats<sup>18</sup>. Major investment in water treatment, particularly in Papeete commune, have been contributing to improve the situation. In New Caledonia, the environmental impacts of open cast mining of nickel are rather severe. Mostly due to nickel mining industry NC is amongst the highest emitters of CO<sub>2</sub> per capita worldwide<sup>19</sup>. This industry also pollutes rivers and lagoons. In both territories, air pollution due to transportation is a reality.

All four OCTs have waste problems. The situation in the territories can be summarized as follows:

| OCT            | Description  |
|----------------|--|
| <b>FP</b>      | Several studies and waste plans, several new installations <sup>20</sup> . Selective collection of household waste on many islands, eco-stations at beaches and information. Tax for collecting and exporting cars. List of forbidden substances in landfills.                                   |
| <b>NC</b>      | Waste from nickel mines and from households (250 thousand tons per year). Tax on hydrocarbons for recycling and re-use of industrial waste. Recently, legislative and active measures have taken place to address a number of recycling and hazardous waste treatment at least in urban centres. |
| <b>PIT</b>     | The islanders re-use or burn most of their waste. One landfill is full. The introduction of a waste management site is foreseen for 2015.  |
| <b>W&amp;F</b> | New policy plan for waste, two new waste treatment plants, incineration of hospital waste, and tax on alcoholic beverages for covering costs of collection of household waste. Local associations which collect beverage cans can sell them to the administration for € 840 per ton.             |

15 <https://ramumine.wordpress.com/tag/french-polynesia/>

16 <http://www.eu-midas.net/>

17 <http://www.cnrs.fr/fr/pdf/inee/SyntheseESCo/index.html#/1/>

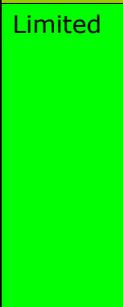
18 In Wallis and Futuna a similar problem exists, but in this case the pressures are caused by pig farming as well as untreated storm water.

19 [https://unstats.un.org/unsd/environment/air\\_co2\\_emissions.htm](https://unstats.un.org/unsd/environment/air_co2_emissions.htm)

20 <http://www.environnement.pf/spip.php?article197> Evaluation report, page 33

## 5.2 BIODIVERSITY

Overfishing, destructive fishing, deforestation, pollution and use of coral materials and coastal sand as building material or as embankment have had a negative impact on coastal erosion, coral reefs and marine ecosystems. The table below shows how widespread coral reefs occur on the territory and an indication of their state.

| Coral reefs     | Occurrence | State of reefs   | Remarks  |
|-----------------|------------|--|--|
| <b>PF</b>       | ●          |                    | Reefs are in relative good condition, with decreases in coral cover in some areas, stable trends in other areas, and increasing coral cover elsewhere after disturbance events. There is little evidence of widespread and prolonged stress, damage, or loss of coral cover. However, fringing reefs show damage from localised stresses around Tahiti and Moorea. When observations of thermal stress over the past 10 years are combined with these local threats, approximately 33% of French Polynesia's reefs are at risk.  |
| <b>NC</b>       | ●          |   Limited data   | Coral health and resilience is reasonably good. Trends in coral cover and reef species are mostly stable, with some sites showing increases or decreases. There were no signs of widespread, long-term, persistent declines, however, long-term data from a wide range of sites are not available. When the impacts of thermal stress over the past 10 years are integrated with local threats, nearly 60% of the coral reefs are currently at risk. The new Coral Sea protected area is expected to have a strong impact towards the improvement of the coral reefs in general and the reversal of the declining trends that exist in some locations. |
| <b>Pitcairn</b> | ○          |   | Healthy coral reef communities <sup>21</sup> although the islands lie at the southern limit of coral reef distribution in the Pacific. High cover of coral, particularly at Ducie and Henderson. Lower coral cover in shallow waters at Pitcairn are likely influenced by runoff and sedimentation from the island, but a healthy deeper coral reef ecosystem was found further offshore.  |
| <b>W&amp;F</b>  | ●          |   Limited data | Most reefs are relatively healthy, with high coral cover and diversity. There are signs that some fringing reefs around Futuna and Alofi may be affected by human activities, and the absence of large fish from Wallis is notable. When the impact of thermal stress is integrated with local threats, 66% of coral reefs in Wallis and Futuna are assessed as being at risk  |

- Extensive
- Some
- None

-  Relatively good for region
-  Declining

All four OCTs have problems with invasive species:

| OCT            | Description  |
|----------------|--|
| <b>FP</b>      | Number of invasive species differ depending on the source. Authorities contacted for the present study refer the existence of 46 species characterized as endangering the biodiversity <sup>22</sup> according to the code of the environment. Giant crown-of-thorns starfish <i>Acanthaster</i> feeds on corals and is a threat to biodiversity in FP and NC. Also worth mentioning are the problems caused by the little fire ant and miconia. |
| <b>NC</b>      | 9 invasive species, 462 potentially invasive. Among others, deer, rats, rabbits (in the islets) and pigs, as well as some plants, also have a negative impact on the environment.  |
| <b>PIT</b>     | Campaigns to eradicate rats, wild goats and rose apple have taken place to protect birds and allow local vegetation to come back. As rose-apple grows in water catchments, it is also affecting fresh water availability.  |
| <b>W&amp;F</b> | 31 invasive species, 225 potentially invasive. Introduced rats have reduced the number of breeding birds; introduced goats and pigs caused the bacteriological contamination of the lagoon by free roaming.  |

21 Friedlander AM, Caselle JE, Ballesteros E, Brown EK, Turchik A, et al. (2014) The Real Bounty: Marine Biodiversity in the Pitcairn Islands. PLoS ONE 9(6): e100142. doi:10.1371/journal.pone.0100142

22 The 2012 Pacific Environment and Climate Change Outlook (PECCO), indicates the occurrence of 201 invasive species, 253 potentially invasive.

## 5.3 NATURAL HAZARDS

Severe windstorms, cyclones, flooding, earthquakes, tsunamis, and volcanic eruptions are constant risks for Pacific islands. All four OCTs in the region are subject to tropical storms, including cyclones and high seas. The likeliness of natural disasters is aggravated by consequences and threats due to climate change, such as rising sea levels, increasing sea temperatures, and the likelihood of increasing frequency of severe natural hazards (cyclones, floods, windstorms). In New Caledonia, hurricane Beti (1996) damaged the Ricaudy coral reef, cyclone Erica (2003) left 3,500 homeless, Vania (2011) caused floods and Edna (2014) left two deaths and two disappeared persons, besides damages on infrastructure. Maupiti, Bora Bora and Huahine in French Polynesia were practically devastated by the cyclones Martin and Osea (1997). More recently in 2010, hurricane Oli caused damages in several islands in French Polynesia (Tahiti, Tubuai and Bora Bora among others). On Wallis and Futuna, Futuna's infrastructure suffered significant damage as a result of cyclone Tomas in 2010, while in December 2012 cyclone Evan caused extensive damage on Wallis Island<sup>23</sup>. The Pitcairn Islands have been the least affected.

According to a World Bank database, between 1948 and 2009, the Pacific region has suffered from 224 devastating tropical cyclones and shaken, since 1900, by 139 major earthquakes.<sup>24</sup>

## 6 REVIEW OF ENVIRONMENTAL GOVERNANCE

### 6.1 INSTITUTIONS

| Summary of environmental management administration in Pacific OCTs |   |   |
|--|---|---|
| OCT  | Summary of government administrative capacity   | NGOs <sup>25</sup>  |
| <b>FP</b>  | Ministry of environment<br>Direction of environment (DIREN)   | Many active NGOs.<br>The website of the Directorate of Environment <sup>26</sup> lists 14 NGO.  |
| <b>NC</b>  | Territorial level :<br>DAFE: Direction du Service d'État de l'Agriculture, de la Forêt et de l'Environnement (State representation within the haussariat)<br>CEE : Comité Consultatif de l'Environnement<br>CEN : Conservatoire des Espaces Naturels<br><br>Provincial level :<br>Province des Iles Loyautés : Service de l'Environnement<br>Province Sud : Direction de l'Environnement (DENV)<br>Province Nord : Direction du développement économique et de l'environnement (DDEE) | There is a consultative committee on the environment and expert groups on certain issues.<br><br>Many active NGOs. For example the biodiversity portal of New Caledonia <sup>27</sup> lists 16 civil society organizations as partners. Some of those entities are organized in associations such as 'Ensemble pour la Planète' which is an association of 17 organisations dealing with environment. |
| <b>PIT</b>   | 10 part-time officers deal with the environment. No specific budget.  | None  |
| <b>W&amp;F</b>   | Service de l'environnement  | None for environment.   |

23 <http://archive.is/www.outre-mer.gouv.fr>

24 <http://www.islandsbusiness.com/2013/1/pacific-update/preparedness-is-key-in-natural-disasters-world-ban/>

25 The EU TCF III has performed in 2013 the "Cartographie of the civil society organizations" in PF and NC. The work includes information on the many civil society environmental actors.

26 [www.environnement.pf/spip.php?article62](http://www.environnement.pf/spip.php?article62)

27 [http://www.biodiversite.nc/Qui-sommes-nous\\_r10.html](http://www.biodiversite.nc/Qui-sommes-nous_r10.html)

## 6.2 POLICIES, STRATEGIES, PLANS, AWARENESS AND MONITORING<sup>28</sup>

The following table summarizes the findings on the four Pacific Ocean OCTs:

| OCT            | Sustainable Development | Environment | Biodiversity | Climate Change | Spatial planning | Marine / Fisheries | Disaster Risk Reduction | Other | Remarks   |
|----------------|-------------------------|-------------|--------------|----------------|------------------|--------------------|-------------------------|-------|---|
| <b>FP</b>      | ✓                       | ✓           | ✓            | +/-            | ✓                | ✓                  | ✓                       | ✓     | Many policy and management plans: for marine areas, territorial planning, prevention of natural risks, and for protection of species (plus action plan 2013-2017)<br>An agreement for waste management.<br>A committee was set up for new water policy.<br>Joint action with ADEME on energy.<br>Environment is integrated in other policy areas.<br>Study of situation on climate change made.<br>Attractive educational material.<br>Awareness raising campaigns.<br>There is monitoring and reporting.   |
| <b>NC</b>      | ✓                       | ✓           | ✓            | ✓              | ✓                | ✓                  | ✓                       | ✓     | Two longer term plans for (sustainable) development: up to 2025 and a joint strategy with CPS for the period 2012-2016.<br>Policy and action plan for conservation of Biodiversity (2006). There are protected areas.<br>General plan for pollution control (Schéma directeur d'assainissement)<br>Waste policy and management plans in the provinces. (Politiques de gestion des déchets, Schémas provinciaux de gestion des déchets (SAGE)<br>There is a Strategy for sustainable development with 119 commitments (South Province)<br><br>A lot of research is done. Many NGOs are active.<br>Website <a href="http://www.biodiversite.nc">www.biodiversite.nc</a> created |
| <b>PIT</b>     | ✓                       | ✓           | +/-          |                |                  |                    | +/-                     | ✓     | Strategic Development Plan (2012-2016) identifies the conservation and protection of the natural environment as a main objective; Tourism Strategic Plan (2011-2015).<br>Environment Management Plan (2008)<br>Henderson Island Management Plan (2004-2009) – expired.  |
| <b>W&amp;F</b> | ✓                       | ✓           | ✓            | ✓              |                  | ✓                  |                         |       | There is a Policy Paper for Sustainable Development (not yet an action plan), a Biodiversity Action Plan, a Coral reefs Plan.<br>There are environmental taxes and subsidies (for building pigsties).<br>Information material available for schools also.<br>There is monitoring and reporting.<br>Plan for water management. (Schéma d'aménagement et de gestion de l'eau)<br>Local IFRECOR plan for 2011-2015 for coral reefs<br>Programme OGAF for agriculture   |

<sup>28</sup> Legend: Sustainable development – environment is included in the overall territory development plan or strategy; Environment – indicate environmental management plan and/or water and sanitation and waste plans; Biodiversity – protected areas, species, strategy on invasive, etc.; Climate change – policy, strategy, or adaptation/mitigation programmes; Spatial planning – including coastal zone management; Marine / fisheries – strategy/plan on marine issues (blue growth) and fisheries master plans or management programme; Other – there is at least one of the following: forest, renewable energy and energy efficiency

## 6.3 LEGAL FRAMEWORK

The OCTs cannot sign a multilateral environmental agreement (MEA)<sup>29</sup> in their own right. But OCTs can take on the responsibilities of an MEA if the associated sovereign state (in the case of the Pacific Ocean: France and UK) has signed the MEA and asks, at the request of the OCT, that the MEA is extended to the territory of the MEA.

Most countries of the Polynesia Mana node<sup>30</sup> have ratified the MEAs that have relevance to coral reef conservation, in particular OCTs linked to France (French Polynesia, Wallis and Futuna) and New Zealand (Cook Islands, Tokelau).<sup>31</sup> The situation with regard to some of the most relevant MEAs is as follows:

| OCT            | Remarks on MEAs participation  |
|----------------|--|
| <b>FP</b>      | FP has agreed to comply with all MEAs ratified by France except Kyoto Protocol on climate change but attended the last Conference of Parties as an observer. The 7 atolls comprised in Fakarava commune are a MAB reserve. |
| <b>NC</b>      | NC has agreed to comply with all MEAs signed by France, except Kyoto Protocol on climate change and Aarhus convention.   |
| <b>PIT</b>     | CITES, CMS, Ramsar, World Heritage, London Convention on Prevention of Marine Pollution; Henderson island is World Heritage site. Ramsar sites identified.   |
| <b>W&amp;F</b> | W&F is included in all MEAs ratified by France. A biodiversity action plan has been prepared for 2006-2010, in compliance with the CBD.  |

Several regional conventions have been developed by UNEP and SPREP that are relevant to coral reef conservation. All countries have ratified the following conventions:

| Name of convention or agreement   | Goal   | Means   |
|---|--|---|
| Apia convention (1976), came into force in 1990   | Conservation of nature in the South Pacific            | Promotes protected areas to preserve examples of natural environments |
| Noumea convention (1996)  | Protection of natural resources and the environment    | Protocols on dumping at sea and control of pollution emergencies      |
| Regional convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean | Signed in 2000 and applies to the whole Pacific region |   |

<sup>29</sup> CBD = Convention on Biological Diversity

Ramsar = Ramsar Convention on Wetlands

CITES = Convention on International Trade in Endangered Species of Wild Flora and Fauna

CMS = Bonn Convention on the Conservation of Migratory Species of Wild Animals (i.a. birds, whales)

WH= Paris Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage)

<sup>30</sup> Cook Is, French Polynesia, Kiribati, Niue, Tokelau, Tonga, Wallis and Futuna.

<sup>31</sup> Wilkinson (2000).

National legislation covers the following areas:

| Areas  | FP  | NC  | PIT   | WF   |
|--|---|---|---|--|
| <b>Nature Protection</b>   | ✓ (1995)  | ✓   | Partly  | ✓  |
| Terrestrial habitats and species   | ✓   | Provinces Nord et Sud: code for the areas, ecosystems, species, reserves and parks; South: regulations on clearance, in freshwater fishing, banks preservation. | Endangered Species Protection Ordinance (2004)<br>Local Government Regulations (1971) | ✓  |
| Invasive species <sup>32</sup>   | ✓ Concerning 46 species                               | N and S: ✓  | +/- concerning only bees  | ✓ concerning 4 species                                   |
| Marine areas and species   | ✓   | Regulations on MPA, fishing, protected ecosystems (sea grass, mangroves, corals), regulation migratory species  | Fisheries Zone Ordinance (2001)<br>Local Government Regulations (1971) on species     |  |
| Natural resources  | ✓   | N and S: ✓  |   | ✓  |
| Pollution territorial waters   |   | ✓   | London Convention   |  |
| <b>Environmental protection</b>  | ✓ (2006)  |   |   | ✓ (2006)   |
| Solid waste  | ✓ Also on gov. obligations, including about landfills | N and S: for private persons and companies only   | Local Government Regulations (1971)   | ✓ also about waste management                            |
| Water  |   | S: includes care for ground water, harnessing, water quality  | Not on quality  | ✓ The territory uses EU Water Framework Directive        |
| Water pollution  | ✓   | Legislation for water regime and prevention of water pollution <sup>33</sup>  |   | ✓  |
| Climate change <sup>34</sup>   | ✓   | ✓   |   | ✓ emission norms   |
| <b>Spatial planning</b>  | ✓   |   |   |  |
| SEA and EIA  | ✓   | ✓   | Local Government Ordinance (2012)   | ✓  |
| Other relevant sectorial legislation with environment related requirements | Prevention of natural risks                           | Prevention of natural risks<br>Mining code  | Land Tenure Reform  | Prevention of natural disasters-plan ORSEC <sup>35</sup> |

## 7 COOPERATION

### 7.1 RELEVANT REGIONAL ORGANISATIONS AND PROGRAMMES

There are a number of regional organisations and networks in the Pacific that are important in a technical or financial sense for the purpose of these environmental profiles, with CROP (Council of Regional

32 <http://www.sidsnet.org/news/sprep-releases-pacific-environment-and-climate-change-outlook-2012>

33 [www.davar.gouv.nc/davar/file/deliberation\\_105.pdf](http://www.davar.gouv.nc/davar/file/deliberation_105.pdf)

34 National observatory on climate change effects (ONERC) created by law 19/02/2001 : <http://onerc.org/>

35 [http://www.pacificdisaster.net/pdnadmin/data/original/JM2013\\_RDM\\_S2\\_WLF\\_TCEvan\\_Palmiste\\_20130701.pdf](http://www.pacificdisaster.net/pdnadmin/data/original/JM2013_RDM_S2_WLF_TCEvan_Palmiste_20130701.pdf)

Organizations of the Pacific) bringing many organisations together.

| <b>Council of Regional Organizations of the Pacific (CROP)</b>   |   |
|--|---|
| <b>OCT members</b>   | <b>Other members</b>  |
|  | Regional inter-governmental agencies and organisations          |
| <b>Remarks</b>   |   |
| <p><b>Created</b> in 1988, it brings together 8 regional inter-governmental agencies incl. SPREP, PIDP, SPU, Pacific Islands Forum, the Pacific Community, fisheries, tourism and educational organisations.<br/> <b>Aim:</b> to promote harmonisation and collaboration between member programmes and to avoid duplication of effort and resources.<br/> <b>Activities:</b> CROP heads have established the CROP CEOs Climate Change Sub-committee, which is jointly chaired by PIFS and SPREP.</p>   |   |
| <b>Pacific Islands Forum</b>   |   |
| <b>OCT members</b>   | <b>Other members</b>  |
| Associated members: NC, FP; observer: W&F  | Most Pacific countries and territories                          |
| <b>Remarks</b>   |   |
| <p><b>Created</b> in 1971<br/> <b>Aim:</b> address common issues from a regional perspective and give collective views greater weight in the international community.<br/> <b>Activities:</b> focuses heavily on security issues, regional trade and economic issues, including natural resources.</p>   |   |
| <b>Secretariat of the Pacific Community (SPC)</b>  |   |
| <b>OCT members</b>   | <b>Other members</b>  |
| FP, NC, PIT, W&F   | Pacific territories plus Australia, New Zealand, France and USA |
| <b>Remarks</b>   |   |
| <p><b>Created</b> in 1947, Headquarters in New Caledonia.<br/> <b>Aim:</b> provide support (in many policy areas) to Pacific Island people achieve sustainable development.<br/> <b>Activities:</b> develops joint work programmes with member countries on technical assistance, professional, scientific and research support and planning and management capacity building.<br/> A plan was adopted to support activities of members for climate change and disaster risk management (2013)<sup>36</sup>. The Climate Change Engagement Strategy for SPC 2011–2015 provides an overarching framework for SPC’s climate change work. It sets organisational objectives and identifies key result areas against which progress can be monitored.<sup>37</sup></p>   |   |
| <b>South Pacific Regional Environment Programme (SPREP)<sup>38</sup></b>   |   |
| <b>OCT members</b>   | <b>Other members</b>  |
| FP, NC, PIT, W&F   | Most Pacific countries and territories                          |
| <b>Remarks</b>   |   |
| <p><b>Created</b> in 1982 but an autonomous organisation since 1991.<br/> <b>Aim:</b> promote cooperation, environmental protection, sustainable development.<br/> <b>Activities:</b> assists countries to comply with MEAs such as the Convention on Biological Diversity, the Ramsar Convention on wetlands, the UNFCCC (through the Pacific Islands Climate Change Assistance Programme) and develops thematic strategies and work programmes with the PICTs.<br/> Several thematic strategies were adopted to date: <ul style="list-style-type: none"> <li>– Pacific Islands Framework for Action on Climate Change;</li> <li>– Action Strategy for Nature Conservation;</li> <li>– Solid Waste Management Strategy for the Pacific Region;</li> <li>– Regional Wetlands Action Plan;</li> <li>– Review of Regional Meteorological Services; and</li> <li>– Guidelines for Invasive Species Management in the Pacific.</li> </ul> The strategic plan for 2011-15 focuses on: <ul style="list-style-type: none"> <li>– Climate change;</li> <li>– Biodiversity and Ecosystem Management;</li> <li>– Waste Management and Pollution Control; and</li> <li>– Environmental Monitoring and Governance.</li> </ul> </p> |   |

36 <http://www.spc.int/images/climate-change/SPC%20climate%20change%20support%20activities%20in%20Pacific%20Island%20countries%20and%20territories.pdf>

37 <http://www.spc.int/en/our-work/climate-change.html>

38 In French: PROE- Programme régional océanien de l’environnement

| <b>Small Island Developing States Information Network (SIDSNet)</b>   |   |
|---|---|
| <b>OCT members</b>  | <b>Other members</b>  |
| Associated <sup>39</sup> : FP, NC plus OCTs in the Caribbean  | All the SIDS in the Pacific are associated or members, plus SIDS in the Caribbean |
| <b>Remarks</b>  |   |
| <p><b>Created:</b> derives from UNCED and since 1997 SIDSnet.</p> <p><b>Aim:</b> has served as a resource and tool for information sharing for SIDS. Future aim is to track international meetings related to SIDS, through a partnership with the International Institute for Sustainable Development, to contribute to filling gaps in data availability on sustainable development in SIDS, and to facilitate partnerships and motivate action in support of the sustainable development of SIDS.</p> <p><b>Activities:</b> It is currently being revitalized, with the support of Spanish cooperation, and transformed into a knowledge management platform with a focus on decentralized content management and stakeholder engagement. SIDSnet responds to several critical challenges of SIDS such as: remoteness; isolation and geographic dispersion; poor connectivity and data management; limited human and technological capacity; and the need for greater international recognition and assistance in reducing SIDS' economic and environmental vulnerability.</p> |   |
| <b>Regional fisheries management organisations (RFMOs)</b><br><b>WCPFC: Western and Central Pacific Fisheries Commission (on tuna)</b><br><b>SPRFMO South Pacific Regional Fisheries Management Organisation</b>  |   |
| <b>OCT members</b>  | <b>Other members</b>  |
| Participating territories: FP,NC, W&F   | All in the region and EU  |
| <b>Remarks</b>  |   |
| <p>RFMOs<sup>40</sup> have a duty to conserve all species associated or affected by their fisheries, including seabirds, turtles, dolphins, sharks and non-target fish.</p> <p>In the Pacific there is a WCPFC- Western and Central Pacific Fisheries Management Commission. Recent measures include nr 2013-09 (Dec 2013): Conservation and Management Measure for pacific bluefin tuna.<sup>41</sup></p> <p>A new RFMO, establishes a regime for conservation and management of non-highly migratory fish stocks and protection of biodiversity in the marine environment in high seas areas in the South Pacific. The first meeting of the Commission of the South Pacific Regional Fisheries Management Organisation, which took place from 28 January to 1 February, 2013<sup>42</sup>, following a process of international consultations and a series of meetings of a Preparatory Conference.</p>   |   |
| <b>SPTO- South Pacific Tourism Organisation</b>   |   |
| <b>OCT members</b>  | <b>Other members</b>  |
| NC, FP  | 10 Pacific states (plus China)  |
| <b>Remarks</b>  |   |
| <p><b>Created</b> in 1999, a mandated inter-governmental body for tourism in the South Pacific.</p> <p><b>Aim:</b> sustainable development of tourism in the South Pacific.</p> <p>Headquarters: Suva, Fiji</p>   |   |

39 <http://unohrlls.org/custom-content/uploads/2013/09/Small-Island-Developing-States-Factsheet-2013-.pdf>

40 About 51 Regional Fisheries Bodies were established worldwide under the FAO implementing the 1982 UN Convention on the Law of the Sea, the FAO's Code of Conduct for Responsible Fisheries (1995) and the UN Fish Stocks Agreement (1995). RFMOs are a special case of those regional bodies. RFMOs are international organisations formed by countries with fishing interests in an area. Some of them manage all the fish stocks found in a specific area, while others focus on particular highly-migratory species, notably tuna, throughout vast geographical areas. Worldwide there are 5 RFMO on tuna, 1 on dolphins, 1 on pollock, 1 on salmon and 2 with purely advisory status spanning all oceans, although not the entire world's oceans are covered. Only five RFMOs (not the WCPFC) have the legal competence to manage most or all fishery resources in their area, including the management of deep sea stocks beyond national jurisdiction.

41 <http://www.wcpfc.int/doc/cmm-2013-09/conservation-and-management-measure-pacific-bluefin-tuna>

42 <http://www.southpacificrfmo.org/meetings/>

| <b>PIDP- Pacific Islands Development Program</b>   |   |
|--|---|
| <b>OCT members</b>   | <b>Other members</b>  |
| OCTs can participate   | 11 island leaders   |
| <b>Remarks</b>   |   |
| <p><b>Created</b> in 1980 at the East-West Centre. PIDP began as a forum through which island leaders could discuss critical development issues with interested countries, donors, NGOs and the private sector.<br/> <b>Aim:</b> equitable social and economic development.<br/> <b>Activities:</b> research and training based on problems identified.</p>  |   |
| <b>University of the South Pacific</b>   |   |
| <b>OCT members</b>   | <b>Other members</b>  |
| No   | 12 island countries   |
| <b>Remarks</b>   |   |
| <p>Created in 1970 to provide higher education and training.<br/> Headquarters: Suva, Fiji.<br/> Jointly owned by 12 island countries. Australia is largest donor.</p>   |   |
| <b>UNEP RSP Regional Seas Programme Pacific</b>  |   |
| <b>OCT members</b>   | <b>Other members</b>  |
| NC, FP, W&F  | 21 PICTs (Pacific islands countries and territories), USA, Australia, New Zealand, France <sup>43</sup> |
| <b>Remarks</b>   |   |
| <p><b>Created</b> in 1974.<br/> <b>Aim:</b> address the degradation of the world's oceans and coastal areas through the sustainable management and use of the marine and coastal environment.<br/> <b>Activities:</b> engages regional countries in comprehensive and specific actions to protect their shared marine environment.<br/> More than 143 countries participate in 13 RSPs, six of which are directly administered by UNEP, among others for the Pacific.<sup>44</sup></p> |   |

FP and NC work together (as members or observers) in a number of regional organisations. W&F participates less in these fora and Pitcairn usually do not, except in the Pacific Community or SPC (Secretariat of the Pacific Community based in NC) in which all four OCTs participate.

The most politically influential of the above organisations is the Pacific Islands Forum. A new Pacific Plan 2013 has been launched, calling for "a new level and quality of political debate, policy and cooperation at the regional level".<sup>45</sup>

For environmental issues, the most relevant and expert organisation is SPREP. New Caledonia chaired the SPREP from September 2012 until September 2013. NC hosted a meeting on scientific cooperation in 2012 and on climate change impact on marine habitats and species in 2013<sup>46</sup>.

New Caledonia hosted a regional conference for all parties of SPC (Noumea, Nov 2011) on energy management.

The EU has a Delegation in the Pacific region (based in Fiji) and an office for the OCTS in New Caledonia. It has provided a substantial programme of financial and technical co-operation for both ACP countries and OCTs (see 5.2.). For the Pacific, the EU, however, does not have a common Regional Strategy Paper (RSP) or a common Regional Indicative Programme (RIP) for funding through the 10<sup>th</sup> EDF or an EPA (Economic Partnership Agreement) as there is, for example, in the Indian Ocean. Nevertheless, there are single programming documents for each OCT and a regional one.

Obstacles to regional cooperation in the Pacific include the physical distance between the countries, their remoteness, great disparities of size, language, cultures, and human and economic resource endowment.

43 <http://www.unep.org/regionalseas/programmes/nonunep/pacific/countries.asp>

44 <http://www.unep.org/regionalseas/programmes/nonunep/pacific/default.asp>

45 [http://www.pacificplanreview.org/resources/uploads/embeds/files/Pac%20Plan%20Review%20Rpt%20Vol1\\_final\(1\).pdf](http://www.pacificplanreview.org/resources/uploads/embeds/files/Pac%20Plan%20Review%20Rpt%20Vol1_final(1).pdf)

46 <http://www.observatoire-gops.org/fr/2nd-cliotop-symposium-noumea-feb-11-15-2013>

## 7.2 RELEVANT REGIONAL INITIATIVES AND PROJECTS

### 7.2.1 EU PROJECTS AND PROGRAMMES

Since 2006, the EU has financed several new (environment related) regional projects for the four Pacific OCTs and many others for ACP countries in the region.

#### **For OCTs in the Pacific**

The 10<sup>th</sup> EDF (2008-2013) approved € 58.49 million for Pacific OCTs own development strategies. In W&F: € 16.49 million for harbour infrastructures and mobility between the islands of Wallis and Futuna and as technical assistance for capacity building in port management and economic planning. In NC, and in the follow up of the 9<sup>th</sup> EDF: € 19.81 million for professional training. In FP: € 19.79 million were granted for water sanitation works for the city of Papeete and technical assistance for capacity building. In PIT: € 2.4 million in 9<sup>th</sup> EDF for the construction of an alternate jetty to increase accessibility to/from the island, including tourists, and € 2.35 million in the 10<sup>th</sup> EDF focusing on complementary support in further developing the territory's tourism sector.

Furthermore, the EU EDF financed 3 projects for more cooperation between the OCTs in the region:

9<sup>th</sup> regional EDF: TEP VERTES (Tonne Equivalent Pétrole - Valorisation of the renewable energies and sharing of experiences and knowledge) in the three OCTs associated to France in the Pacific, aimed at accelerating provision of renewable energy in isolated rural areas. Total cost: € 10.308 million, of which € 5.228 million financed by the EU.

The Disaster Risk Reduction Programme (DRRP), supported by the 9<sup>th</sup> Regional FED, provides technical and policy advice and support to strengthen disaster risk management practices in Pacific Island Countries and Territories. The overarching policy guidance for DRP is the Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005-2015 (Pacific DRR and DM Framework for Action)<sup>47</sup> which supports and advocates for the building of safer and more resilient communities to disasters. The other significant regional policy instruments that help to guide the efforts of the DRP are the Pacific Plan and the Pacific Islands Framework for Action on Climate Change 2006 – 2015. The programme includes a project of sismological risk and alert system, another on preparation of a DRR emergency intervention platform, and DRR reducing interventions in all 4 Pacific OCTs.

10<sup>th</sup> regional EDF: INTEGRE (Initiative des Territoires du Pacifique pour la gestion régionale de l'environnement) aims at strengthening the capacities of the 4 Pacific OCTs in integrated coastal zone management (ICZM), and their integration at the regional level with Pacific ACPs and beyond. This € 12 million programme also aims at creating synergies between ongoing and future activities and projects at the territorial, national and regional levels in the Pacific region. It is implemented by SPC.

9<sup>th</sup> regional EDF: SCIFISH, a regional project that started in 2008 and ended in 2011, aimed at providing a scientific basis for the decisions of the WCPFC. The project included ACP countries and OCTs in the region, on sustainable conservation and management of oceanic and coastal fisheries in the region. Total envelope concerning OCTs: € 2.6 million.

BEST: PACIOCEA Pacific Ocean Ecosystem Analysis – a new European maritime programme for the South Pacific, led by the Agency of Marine Protected Areas and the SPREP. The objective is to analyse and consider together the environmental, socio-economic and cultural challenges in order to improve the large scale management of the marine environment. It specifically aims at identifying and establishing sustainable management of the resources for the local population strongly dependent of the marine environment.

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<sup>47</sup> The Pacific DRR and DM Framework for Action was approved by Pacific leaders in 2005. It is linked to the global Hyogo Framework for Action 2005 – 2015 which was endorsed by World leaders following the Second World Conference on Disaster Reduction in January 2005.

### **For ACP countries only:**

**ACSE** (Adapting to climate change and sustainable energy) - Signed in February 2014 for a total of € 37.26 million, of which 35.5 million from the EU.<sup>48</sup> The programme will help 15 ACP countries address three main challenges common to all of them: adapting to climate change, reducing the reliance on fossil fuels and building their capacity.

**PACWASTE**, a project on hazardous waste (medical, e-waste and asbestos) for 15 ACP countries, signed in April 2013, with a budget of € 8 million (10<sup>th</sup> EDF). The programme's aim is to adopt cost-effective and self-sustaining waste management systems to protect public health and the environment while at the same time encouraging economic growth.

**Deep Sea Minerals Project** Initiated in 2011, the €4.4 million DSM Project is collaboration between the Secretariat of the Pacific Community (SPC) and the European Union (EU). The project aims to help Pacific Island countries to improve the governance and management of their deep-sea minerals resources in accordance with international law, with particular attention to the protection of the marine environment and securing equitable financial arrangements for Pacific Island countries and their people.

**Trade**, a project that deals with increasing agricultural commodity trade (**IACT**), signed in 2011 between the European Commission and the SPC.

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## 7.2.2 PACIFIC COMMUNITY REGIONAL PROJECTS

The Climate Change Engagement Strategy for SPC 2011–2015<sup>49</sup> provides an overarching framework for SPC's climate change work. It sets organisational objectives and identifies key result areas against which progress can be monitored. The climate change engagement strategy targets three strategic outcomes that are linked directly to SPC's vision. These are:

- Strengthened capacity of Pacific Island communities to respond effectively to climate change;
- Climate change integrated into SPC programmes and operations;
- Strengthened partnerships at the regional and international level.

An overview has been made of all actions on climate change and risk management in the region in 2013.<sup>50</sup> The document includes information about the development partners that are supporting the activity and the approximate timeframe over which the support is being provided, a brief summary of the status of the project as well as the intended impact of the activity.

The Pacific Islands Forum adopted a Pacific Climate Change Finance Assessment Framework (PCCFAF) in 2013. This approach has emanated from, and has been piloted and refined through a case study of Nauru.<sup>51</sup>

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## 7.2.3 FRANCE

France has a fund for the Pacific aiming at the regional integration of the 3 French OCTs. In the area of the environment, priorities are waste management, and sustainable management of fisheries.<sup>52</sup>

The French Development Agency (AFD) provides loans to the French pacific OCTs.<sup>53</sup> For the Pacific and

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48 [http://www.forumsec.org/resources/uploads/attachments/documents/EDF10\\_FA\\_ACSE.pdf](http://www.forumsec.org/resources/uploads/attachments/documents/EDF10_FA_ACSE.pdf)

49 <http://www.spc.int/en/our-work/climate-change.html>

50 <http://www.spc.int/images/climate-change/SPC%20climate%20change%20support%20activities%20in%20Pacific%20Island%20countries%20and%20territories.pdf> (page 55 for NC, page 29 for FP, page 106 for WF page 69 for PIT).

51 [http://www.forumsec.org/resources/uploads/embeds/file/PCCFAF\\_Final\\_Report.pdf](http://www.forumsec.org/resources/uploads/embeds/file/PCCFAF_Final_Report.pdf)

52 [http://www.uicn.fr/IMG/pdf/Guide\\_des\\_financements.pdf](http://www.uicn.fr/IMG/pdf/Guide_des_financements.pdf)

53 <http://www.afd.fr/home/outre-mer/agences-outre-mer/Nouvelle-Caledonie/afd-nouvelle-caledonie>

<http://www.afd.fr/home/outre-mer/agences-outre-mer/polynesie-francaise>

<http://www.afd.fr/home/outre-mer/agences-outre-mer/wallis-et-futuna>

for the environment, the agency contributes in two fields: conservation of biodiversity and action against climate change.<sup>54</sup> It works together with the SPC and the French Fund for the Environment (FFEM)<sup>55</sup>. From 2003 to 2009, FFEM financed 106 projects (total: € 120 million) with 19 projects in Asia and the Pacific. Fields are climate change<sup>56</sup>, international waters<sup>57</sup>, biodiversity<sup>58</sup>, ozone layer, desertification, pollution.

RESCCUE project - Biodiversity-rich natural environments in the South Pacific are under intensive pressure caused by human activities and climate change. AFD and the FFEM are going to finance a regional cooperation project called RESCCUE in order to preserve this wealth. The project involves communities in maintaining ecosystems by developing the services that these ecosystems provide for them<sup>59</sup>.

The French Biodiversity plan for Overseas: certain actions are applied throughout the OCTs: struggle against invasive species, dry forests preservation, and the establishment of coral reefs as world heritage.

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54 Mentioned in 2012 report on action in NC.

<http://www.afd.fr/webdav/site/afd/shared/PORTAILS/PAYS/NOUVELLE%20CALEDONIE/Bilan%20de%20l%27activit%C3%A9%2012%20de%20l%27AFD%20en%20Nouvelle-Cal%C3%A9donie.pdf>

55 Fonds Français pour l'Environnement Mondial <http://www.ffem.fr/site/ffem/>

56 [http://www.ffem.fr/webdav/site/ffem/shared/ELEMENTS\\_COMMUNS/U\\_ADMINIFEM/Publications/FFEM%20français%20BD.pdf](http://www.ffem.fr/webdav/site/ffem/shared/ELEMENTS_COMMUNS/U_ADMINIFEM/Publications/FFEM%20français%20BD.pdf)

57 [http://www.ffem.fr/webdav/site/ffem/shared/ELEMENTS\\_COMMUNS/U\\_ADMINISTRATEUR/5-PUBLICATIONS/Eaux\\_internationales/FFEM-FR-BD.pdf](http://www.ffem.fr/webdav/site/ffem/shared/ELEMENTS_COMMUNS/U_ADMINISTRATEUR/5-PUBLICATIONS/Eaux_internationales/FFEM-FR-BD.pdf)

58 [http://www.ffem.fr/webdav/site/ffem/shared/ELEMENTS\\_COMMUNS/U\\_ADMINIFEM/Publications/Plaqueette%20biodiversite-FR-BD.pdf](http://www.ffem.fr/webdav/site/ffem/shared/ELEMENTS_COMMUNS/U_ADMINIFEM/Publications/Plaqueette%20biodiversite-FR-BD.pdf)

59 <http://www.afd.fr/lang/en/home/outre-mer?actuCtnId=99104>

## 8 RECOMMENDATIONS

This section considers recommendations at the level of the Pacific region. Recommendations with regard to individual OCTs are made at the end of the individual OCT environmental profiles. Part 1 of this report contains recommendations at the overall and interregional levels.

We identified the following issues:

| Issues               | Severity   |
|----------------------|--|
| Loss of biodiversity | Severe for the 3 OCTs linked to France, in particular as they are hot spots but have a high % of endangered endemic species. Loss of forests in W&F and dry forests in NC. |
| Pollution            | Severe for NC and W&F.   |
| Invasive species     | Severe for all 4.  |
| Energy dependency    | Severe for all 4, in particular for NC given energy need for nickel processing.  |
| Natural catastrophes | Severe for all 4, Pitcairn being the least affected.   |

It is possible to identify best practices that can be expanded or replicated in other OCTs in the region:

| Actions  | Comment   |
|--|---|
| Increase protected areas (terrestrial and marine)          | NC has highest % of area that is officially protected (3.6 % of land area) and since the establishment of the Coral Sea Protected area, the whole EEZ. However, there are worries about accidents from mining activities.   |
| Action against invasive species                            | New legislation adopted in the three French OCTs and management actions taken. There is a need to continue to expand these efforts.   |
| Improve waste water and solid waste collection and (re)use | Good efforts made by NC (waste) and FP (waste water). Pitcairn is also improving the water and sanitation situation. There is a need to modernize the systems and, where possible, establish regional cooperation for off-island treatment of certain types of waste. |
| Reduce energy dependency                                   | PF, NC and Pitcairn encourage the construction of small renewable energy power plants.<br>NC: Climate and energy policy (Schéma climat énergie) and mitigation measures (performance labelling, public transport promotion...)  |
| Natural catastrophes                                       | Plan ORSEC 2012 in NC, also recently applied in W&F (cyclone Evan, Dec 2012). SPC can be pivotal on the application of the plan to other islands. Should be supported.  |

It is recommended that support to regional initiatives is provided – this can be done at territorial or regional level, or both. This support should include OCTs and ACPs. One of the main regional priorities is control of invasive species. SPREP and SPC developed Guidelines for Invasive Species Management in the Pacific, at the request of and with the collaboration of its member countries, and endorsed by them in 2008. The guidelines set countries and territories' as well as regional priorities. The Pacific has also developed two networks for improving invasive species management in the region: the Pacific Invasives Partnership (PIP) is a coordinating body for international agencies that provide services to Pacific countries and territories, and the Pacific Invasives Learning Network (PILN) is a network for invasive species workers in the countries and territories themselves. The Invasive Species programme coordinates both networks and develops and manages multi-country invasive species projects. It further assists its member countries and territories to develop their invasive programmes and projects, such as by providing expertise and access to funds.

| Goal                              | Action  | Baseline situation  | Priority and time frame | Implementing entity(ies)               | € and HR Needs | Risks and Assumptions | Possible € sources     |
|-----------------------------------|---|---|-------------------------|--|----------------|-----------------------|------------------------|
| Improve climate change resilience | Mainstream climate change into development planning   | An overview has been made of all actions on climate change and risk management in the region in 2013, listing the support development partners and the approximate timeframe over which the support is being provided. EU is financing INTEGRE. | 5 years                 | SPC OCT government (inter-ministerial) |                |                       | INTEGRE, Other EU, SPC |
|                                   | <b>Activities</b><br>Support Climate Change Engagement Strategy for SPC 2011–2015;<br>Promote joint research OCT and ACP. Centralize climate data and develop climate change scenarios for the Pacific region;<br>Identify needs and set up conditions for adequate climate monitoring;<br>Take stock of the work already done, and identify needs and set up conditions for adequate climate monitoring;<br>Identify priority policies and strategies in each OCT according to the major foreseen impacts of climate change;<br>Obtain agreements to change the policies and strategies, and mainstream integration of climate change in other policies;<br>Adopt planning restrictions particularly on coastal areas, adopt cyclone-proof building codes. |   |                         |  |                |                       |                        |

| Goal                                   | Action   | Baseline situation   | Priority and time frame | Implementing entity(ies) | € and HR Needs | Risks and Assumptions | Possible € sources |
|--|--|--|-------------------------|--------------------------|----------------|-----------------------|--------------------|
| Marine and Terrestrial Protected areas | Expand the protected areas and equip with adequate management plans (technical and financial) and staff  | The support given by the FFEM for biodiversity conservation <sup>1</sup> is a good example.<br>The CRISP programme supported regional planning priorities for conservation and helped to create/strengthen 40 MPAs.<br>Existence of CEN. | Long term               |                          |                |                       |                    |
|  | <b>Activities</b><br>Generate more data on the ecosystems and species worth to protect;<br>Enact legislation to support the protection;<br>Harmonize legislation with the international environmental obligations (MEAs) extended to the territories;<br>Elaborate management plans;<br>Engage on European and worldwide awareness raising campaigns for fund mobilization and tourist attraction as ways to ensure long time financing. |  |                         |                          |                |                       |                    |

<sup>1</sup> A total of 107 projects were financed = 108 M€, with 10 in Asia/ Pacific)

| Goal                     | Action   | Baseline situation   | Priority and time frame | Implementing entity(ies) | € and HR Needs | Risks and Assumptions | Possible € sources |
|--------------------------|--|--|-------------------------|--------------------------|----------------|-----------------------|--------------------|
| Improve waste management | Develop waste management systems within each territory and in the region   | The EU is financing PACWASTE in 15 ACP countries. SPREP has a solid waste strategy to the region. Countries are making efforts to improve waste management | 5 years                 |                          |                |                       |                    |
|                          | <b>Activities</b><br>Study the possibility of expanding PACWASTE to the OCTs;<br>Study the best way to support regional initiatives on solid waste;<br>Promote regional agreements on different waste streams in order to achieve valorisation of waste, and to manage more efficiently some sorts of hazardous waste;<br>Study the several options and strategies for waste valorisation through recycling and waste to energy methods – including cost-efficiency analysis, assessment of human resource capacity, strategic environmental assessment, etc. ;<br>Organise a structured business dialogue with the stakeholders (public, private and civil society) and decision makers of each OCT in order to fix realistic plans (ready to be implemented) on different waste streams in order to achieve valorisation of waste, and to manage more efficiently some sorts of hazardous waste. |  |                         |                          |                |                       |                    |

| Goal                               | Action   | Baseline situation   | Priority and time frame | Implementing entity(ies) | € and HR Needs | Risks and Assumptions | Possible € sources |
|------------------------------------|--|--|-------------------------|--------------------------|----------------|-----------------------|--------------------|
| Integrated Coastal Zone Management | Develop and implement coastal zone management plans  | There are pressures on coastal zones in all OCTs. Corals and mangroves are being destroyed due to several pressures. Income generating activities in the coastal area including in the sea are to not being fully explored. EU finances INTEGRE. | 5 years                 | OCT governments          |                |                       |                    |
|                                    | <b>Activities</b><br>Involve and coordinate the various public, private and civil society actors (environment, land, fishing, police, defence, ports, tourism, rural development, local authorities) to assess the uses and pressures of the coastal zone and coastal waters, as well as their potentialities.<br>In each OCT, develop a study on the potential economic and environmental risks in coastal areas including climate change and assess what are the priority issues regarding the legal framework and financing needs both for investment as for running costs (e.g. wastewater is an important pressure in these OCTs and solutions require further research and fund mobilization for investment), involve private sector, promoting green and blue economy.<br>Generate more data on the ecosystems and species worth to protect;<br>Develop studies on income generating activities in the coastal areas, with a view also to support activities at sea;<br>Conduct workshops to discuss options;<br>Develop the plans of integrated coastal zone management integrating the several uses and the needs for protection, and take into account |  |                         |                          |                |                       |                    |

|   |
|---|
| <p>prospective scenarios and climate change;<br/> Draft legislation necessary to implement the plan, harmonize legislation with the international environmental obligations (MEAs) extended to the territories;<br/> Promote co-management, eco-tourism, renewable energies, wherever possible.</p> |
|---|

| Goal  | Action  | Baseline situation  | Priority and time frame | Implementing entity(ies)     | € and HR Needs | Risks and Assumptions | Possible € sources   |
|---|---|---|-------------------------|------------------------------|----------------|-----------------------|--|
| Reduce dependency on fossil fuels and GHG emissions | Establish conditions for the penetration of renewable energies and promotion of energy efficiency | The EU financed TEP VERTES, a regional project for the OCTs as well as ACSE for the Pacific ACP. The OCTs have been making efforts to increase renewable energy penetration.<br>OCTs are an ideal field for testing specific technologies and wide RE penetration   | 5 years                 | OCTs governments<br>Regional |                |                       | EU<br>WB and<br>Regional Development Banks<br>Private sector |
|   | <b>Activities</b>   | Organise networking between the different regional stakeholders, OCTs and ACP countries, dealing with this issue, namely the two EU initiatives. Promote sharing of experiences, and knowhow;<br>Clarify what can be done regionally (specialised technical teams, production of equipment, training teams) and support its development;<br>Review the institutional framework so that energy can be dealt with in its integrity – electricity, fuels, etc. and linked to environment and climate change – this at both territorial and regional level;<br>Study the most appropriate renewable energies (RE) solutions, and the most appropriate energy efficiency (EE) solutions, taking into account the initial cost and the cost of operation, the feasibility of local maintenance and repair – engage private sector and increase local expertise on RE and EE (energy efficiency) solutions;<br>Establish appropriate regulatory framework, enabling involvement of private sector, and establishing the adequate safeguards for energy safety and security;<br>Develop capacity building in project finance, including strengthening fund raising expertise and requiring regular “Donor” coordination meetings. |                         |                              |                |                       |  |

**Pacific region**

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| Organisation  | Website address  | Remarks  |
|---|--|--|
| AOSIS   | <a href="http://aosis.org/">http://aosis.org/</a>  | Alliance of Small Island States  |
| APEC- Asia Pacific Economic Cooperation   | <a href="http://www.apec.org/">http://www.apec.org/</a>  |  |
| Asia-Pacific network for global change  | <a href="https://www.apn-gcr.org/">https://www.apn-gcr.org/</a>  |  |
| Asia-Pacific network research network   | <a href="http://www.aprnet.org/">http://www.aprnet.org/</a>  |  |
| CBDAMPIC  | <a href="http://www.sprep.org/climate_change/pycc/documents/CBDAMPIC.pdf">http://www.sprep.org/climate_change/pycc/documents/CBDAMPIC.pdf</a>  | Capacity Building for the Development of Adaptation Measures in Pacific Island Countries |
| EU  | <a href="http://eeas.europa.eu/delegations/fiji/eu_pacific/tech_financial_cooperation/index_en.htm">http://eeas.europa.eu/delegations/fiji/eu_pacific/tech_financial_cooperation/index_en.htm</a>  | Pacific programme  |
| EU- ACSE  | <a href="http://www.forumsec.org/resources/uploads/attachments/documents/EDF10_FA_ACSE.pdf">http://www.forumsec.org/resources/uploads/attachments/documents/EDF10_FA_ACSE.pdf</a>  | Programme for Adapting to climate change and sustainable energy for Pacific ACPs         |
| EU- PACWASTE  | <a href="http://www.forumsec.org/resources/uploads/attachments/documents/EDF10_PACWASTE_FA.pdf">http://www.forumsec.org/resources/uploads/attachments/documents/EDF10_PACWASTE_FA.pdf</a>  | Programme for waste management in Pacific ACPs   |
| EU- SCIFISH   | <a href="http://www.spc.int/oceanfish/en/major-projects/scifish">http://www.spc.int/oceanfish/en/major-projects/scifish</a>  | Programme for pacific ACPs and OCTs on fisheries   |
| EU- TEP VERTES  |  | Programme for pacific OCTs on renewable energies   |
| EU- IACT  | <a href="http://forumsec.org/resources/uploads/attachments/documents/EDF10_CA_IACT.pdf">http://forumsec.org/resources/uploads/attachments/documents/EDF10_CA_IACT.pdf</a>  | Programme for pacific ACP countries, on trade  |
| IUCN regional   | <a href="http://www.iucn.org/about/union/secretariat/offices/oceania/oro_getinvolved/speciesforum">http://www.iucn.org/about/union/secretariat/offices/oceania/oro_getinvolved/speciesforum</a>  | Pacific islands species forum  |
| Pacific Climate Change Finance Assessment Framework (PCCFAF)                    | <a href="http://www.forumsec.org/resources/uploads/embeds/file/PCCFAF_Final_Report.pdf">http://www.forumsec.org/resources/uploads/embeds/file/PCCFAF_Final_Report.pdf</a>  |  |
| Pacific Islands Forum   | <a href="http://forumsec.org/resources/uploads/embeds/file/Climate_Finance_Strengthening_Capacity.pdf">http://forumsec.org/resources/uploads/embeds/file/Climate_Finance_Strengthening_Capacity.pdf</a>  | On climate finance   |
| Pacific Islands Forum Secretariat   | <a href="http://www.forumsec.org/pages.cfm/strategic-partnerships-coordination/european-development-fund/">http://www.forumsec.org/pages.cfm/strategic-partnerships-coordination/european-development-fund/</a>  | Cooperation with the EU  |
| PICCAP (Pacific Islands Climate Change Assistance Programme)                    | <a href="http://www.asiapacificadapt.net/adaptation-practices/pacific-islands-climate-change-assistance-programme-piccap">http://www.asiapacificadapt.net/adaptation-practices/pacific-islands-climate-change-assistance-programme-piccap</a>  |  |
| Protocol for the Prevention of Pollution of the South Pacific Region by Dumping | <a href="http://sedac.ciesin.columbia.edu/entri/register/reg-146.rrr.html">http://sedac.ciesin.columbia.edu/entri/register/reg-146.rrr.html</a><br><a href="http://sedac.ciesin.columbia.edu/entri/texts/pollution.dumping.south.pacific.protocol.1986.html">http://sedac.ciesin.columbia.edu/entri/texts/pollution.dumping.south.pacific.protocol.1986.html</a> |  |

| Organisation  | Website address   | Remarks   |
|---|---|---|
| Secretariat Pacific Community                           | <a href="http://www.spc.int/">http://www.spc.int/</a>   |   |
| Secretariat Pacific Community                           | <a href="http://www.spc.int/images/climate-change/climate-change-strategy-20120516.pdf">http://www.spc.int/images/climate-change/climate-change-strategy-20120516.pdf</a>   | On climate change                                     |
| SIDS  | <a href="http://www.sidsnet.org">http://www.sidsnet.org</a>   | Small developing island states (Pacific)              |
| SOPAC- South Pacific Applied Geoscience Commission      | <a href="http://www.sopac.org">www.sopac.org</a>  |   |
| SPREP   | <a href="http://www.sprep.org/">http://www.sprep.org/</a>   | South Pacific Regional Environment Programme          |
| SPREP   | <a href="https://www.sprep.org/attachments/000921_SPREPS%20strategicPlan2011_2015.pdf">https://www.sprep.org/attachments/000921_SPREPS%20strategicPlan2011_2015.pdf</a>   | Action plan   |
| SPREP   | <a href="https://www.sprep.org/pacc">https://www.sprep.org/pacc</a>   | Pacific Adaptation to Climate Change (PACC) Programme |
| UN- Economic and Social Commission for Asia and Pacific | <a href="http://www.unescap.org/">http://www.unescap.org/</a>   |   |
| UNEP regional seas programme                            | <a href="http://www.unep.org/regionalseas/programmes/nonunep/pacific/instruments/default.asp">http://www.unep.org/regionalseas/programmes/nonunep/pacific/instruments/default.asp</a>   | on regional seas (pacific)                            |
| Western and central pacific fisheries commission        | <a href="http://www.oceansatlas.org/unatlas_gifs/offsiteframe.jsp?url=http%3A%2F%2Fwww.fao.org%2Ffi%2Fbody%2Fbody.asp&amp;ctn=2014&amp;kot=web-sites">http://www.oceansatlas.org/unatlas_gifs/offsiteframe.jsp?url=http%3A%2F%2Fwww.fao.org%2Ffi%2Fbody%2Fbody.asp&amp;ctn=2014&amp;kot=web-sites</a><br><a href="http://www.wcpfc.org/pdf/Map.pdf">http://www.wcpfc.org/pdf/Map.pdf</a><br><a href="http://www.wcpfc.org/pdf/Rules_of_Procedure.pdf">http://www.wcpfc.org/pdf/Rules_of_Procedure.pdf</a> |   |

## French Polynesia

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IUCN, Biodiversité d'Outre-Mer, éditions Roger Le Guen, Comité français de l'UICN, 2013, chapter on FP.

Langlade, M-J., 2002: Effet des cyclones de l'été austral 1982-1983 sur les pentes récifales externes des atolls des Tuamotu, on IRD website on article: Harmelin-Vivien, M.L./ Laboute, P. (1986), Catastrophic impact of hurricanes on atoll outer reef slopes in the Tuamotu (French Polynesia). Coral Reefs 5 : 55-62

Ministère du Développement Durable PF (2006), Stratégie pour la biodiversité de Polynésie Française. On: [http://biodiv.mnhn.fr/convention/cbd\\_national/fo1297852/strategie\\_PF.pdf](http://biodiv.mnhn.fr/convention/cbd_national/fo1297852/strategie_PF.pdf)

Revue Écologique (Terre Vie), vol. 63, 2008: « Le suivi de l'état des récifs coralliens de Polynésie Française et leur récente évolution » par Bernard Salvat et autres.

SNB - Stratégie Nationale pour la Biodiversité- Plan d'action des collectivités d'outre-mer 2008-2010 ([http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN\\_14\\_-\\_SNB\\_-\\_PA\\_Outre-Mer.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN_14_-_SNB_-_PA_Outre-Mer.pdf))

Vieux, C., B. Salvat, Y. Chancerelle, T. Kirata, T. Rongo and E. Cameron , 2008 , Status of Coral Reefs in Polynesia Mana Node Countries: Cook Islands, French Polynesia, Niue, Kiribati, Tonga, Tokelau and Wallis and Futuna . In: Wilkinson, C. (ed.). Status of Coral Reefs of the World: 2008. Global Coral Reef Monitoring Network and Reef and Rainforest Research Centre, Townsville, Australia. pp 189-198.

| Organisation                             | Website address  | Remarks                      |
|--|--|------------------------------|
| FP Presidency                            | <a href="http://web.presidence.pf/">http://web.presidence.pf/</a>  |                              |
| DIREN- Directorate for Environment of FP | <a href="http://www.environnement.pf/spip.php?rubrique41">http://www.environnement.pf/spip.php?rubrique41</a><br>On institutions:<br><a href="http://www.environnement.pf/spip.php?rubrique106">http://www.environnement.pf/spip.php?rubrique106</a> | Direction de l'environnement |

| Organisation                                       | Website address  | Remarks  |
|--|--|--|
| On the environment                                 | <a href="http://www.environnement.pf/spip.php?rubrique128">http://www.environnement.pf/spip.php?rubrique128</a><br><a href="http://www.environnement.pf/spip.php?rubrique94">http://www.environnement.pf/spip.php?rubrique94</a>   |  |
| On nature areas                                    | <a href="http://www.environnement.pf/spip.php?rubrique54">http://www.environnement.pf/spip.php?rubrique54</a>  |  |
| On marine protected areas                          | <a href="http://www.aires-marines.fr/L-Agence/Organisation/Antennes/Antenne-Polynesie">http://www.aires-marines.fr/L-Agence/Organisation/Antennes/Antenne-Polynesie</a>  |  |
| On protection of marine species                    | <a href="http://www.environnement.pf/spip.php?article193">http://www.environnement.pf/spip.php?article193</a>  |  |
| On waste   | <a href="http://www.environnement.pf/spip.php?article197">http://www.environnement.pf/spip.php?article197</a><br><a href="http://www.polynesie-francaise.pref.gouv.fr/Les-Subdivisions2/des-iles-Tuamotu-Gambier/Environnement-et-developpement-durable/Gestion-des-dechets">http://www.polynesie-francaise.pref.gouv.fr/Les-Subdivisions2/des-iles-Tuamotu-Gambier/Environnement-et-developpement-durable/Gestion-des-dechets</a> |  |
| On water   | <a href="http://www.environnement.pf/spip.php?rubrique78">http://www.environnement.pf/spip.php?rubrique78</a><br><a href="http://www.environnement.pf/spip.php?article103">http://www.environnement.pf/spip.php?article103</a>   |  |
| On the environment and SD                          | <a href="http://www.polynesie-francaise.pref.gouv.fr/Les-Subdivisions2/des-iles-Tuamotu-Gambier/Environnement-et-developpement-durable">http://www.polynesie-francaise.pref.gouv.fr/Les-Subdivisions2/des-iles-Tuamotu-Gambier/Environnement-et-developpement-durable</a>  |  |
| On climate change                                  | <a href="http://www.environnement.pf/IMG/pdf/Brochure_CC_DIRE_N_Gump.pdf">http://www.environnement.pf/IMG/pdf/Brochure_CC_DIRE_N_Gump.pdf</a>  |  |
| On forests   | <a href="http://bft.cirad.fr/cd/BFT_291_25-40.pdf">http://bft.cirad.fr/cd/BFT_291_25-40.pdf</a>  | From CIRAD- French forestry service                                      |
| On birds   | <a href="http://www.environnement.pf/spip.php?rubrique63">http://www.environnement.pf/spip.php?rubrique63</a> and <a href="http://www.manu.pf">www.manu.pf</a><br><a href="http://www.manu.pf/les-oiseaux/statut-et-conservation/">http://www.manu.pf/les-oiseaux/statut-et-conservation/</a>  | From SOP Société d'Ornithologie de Polynésie) - birds NGO                |
| On spatial planning                                | <a href="http://www.urbanisme.gov.pf/spip.php?rubrique116">http://www.urbanisme.gov.pf/spip.php?rubrique116</a><br><a href="http://www.urbanisme.gov.pf/spip.php?rubrique31">http://www.urbanisme.gov.pf/spip.php?rubrique31</a>   |  |
| Environmental code                                 | <a href="http://www.environnement.pf/spip.php?article62">http://www.environnement.pf/spip.php?article62</a><br><a href="http://www.environnement.pf/IMG/pdf/code_env_30-11-06.pdf">http://www.environnement.pf/IMG/pdf/code_env_30-11-06.pdf</a>   |  |
| On risks prevention                                | <a href="http://www.urbanisme.gov.pf/spip.php?rubrique121">http://www.urbanisme.gov.pf/spip.php?rubrique121</a>  |  |
| ADEME (Energy)                                     | <sup>1</sup> <a href="http://www.polynesie-francaise.pref.gouv.fr/Les-services-de-l-Etat/ADEME">http://www.polynesie-francaise.pref.gouv.fr/Les-services-de-l-Etat/ADEME</a>   |  |
| Agence des aires marines protégées                 | <a href="http://www.aires-marines.fr">www.aires-marines.fr</a>   |  |
| BRGM, Bureau de Recherches Géologiques et Minières | <a href="http://www.brgm.fr">www.brgm.fr</a><br>Accord avec la PF (2013):<br><a href="http://www.brgm.fr/content/brgm-polynesie-francaise-signent-accord-cadre">http://www.brgm.fr/content/brgm-polynesie-francaise-signent-accord-cadre</a>   | French Geological Institute  |
| IEOM- Institut d'Emission d'Outre-Mer              | <a href="http://www.ieom.fr/IMG/rapport_annuel_ieom_polynesie_francaise_2012/Rapport_annuel_IEOM_Polynesie_francaise_2012/index.php">http://www.ieom.fr/IMG/rapport_annuel_ieom_polynesie_francaise_2012/Rapport_annuel_IEOM_Polynesie_francaise_2012/index.php</a>  | 2012 report  |
| FP - CESC Council                                  | <a href="http://www.cesc.pf/">http://www.cesc.pf/</a><br>on beaches:<br><a href="http://www.cesc.pf/index.php/actualites-cesc/658-rapport-sur-l-amenagement-des-plages-publiques-adopte-a-l-unanimite">http://www.cesc.pf/index.php/actualites-cesc/658-rapport-sur-l-amenagement-des-plages-publiques-adopte-a-l-unanimite</a>  | Conseil économique, social et culturel                                   |
| FP Assembly  | <a href="http://www.assemblee.pf/fr/">http://www.assemblee.pf/fr/</a>  | Assemblée PF   |
| France in FP                                       | <a href="http://www.polynesie-francaise.biep.fonction-publique.gouv.fr/common/page/45">http://www.polynesie-francaise.biep.fonction-publique.gouv.fr/common/page/45</a>  |  |
| France's info on FP                                | <a href="http://www.polynesie-francaise.biep.fonction-publique.gouv.fr/common/page/default">http://www.polynesie-francaise.biep.fonction-publique.gouv.fr/common/page/default</a>  |  |
| French financial contribution to FP in 2010        | <a href="http://www.polynesie-francaise.pref.gouv.fr/L-Etat-en-chiffres/Les-depenses-de-l-Etat-en-PF">http://www.polynesie-francaise.pref.gouv.fr/L-Etat-en-chiffres/Les-depenses-de-l-Etat-en-PF</a>  |  |
| French Center for Biodiversity Convention          | <a href="http://biodiv.mnhn.fr/information/outre_mer/foi528725">http://biodiv.mnhn.fr/information/outre_mer/foi528725</a><br>on FP   | Centre d'Echange français pour la Convention sur la diversité biologique |
| French Ministry Ecology, SD and Energy             | <a href="http://www.developpement-durable.gouv.fr/?id_article=816">http://www.developpement-durable.gouv.fr/?id_article=816</a>  | Ministère de l'Écologie, du Développement durable et de l'énergie        |

| Organisation   | Website address  | Remarks                                     |
|--|--|---|
| French Ministry plan on biodiversity                                 | <a href="http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN_14_-_SNB_-_PA_Outre-Mer.pdf">http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN_14_-_SNB_-_PA_Outre-Mer.pdf</a>  | French Biodiversity plan for outre-mer      |
| French Overseas Ministry on FP                                       | <a href="http://www.outre-mer.gouv.fr/?-polynesie-francaise-.html">http://www.outre-mer.gouv.fr/?-polynesie-francaise-.html</a>  | Ministère de l'Outre-Mer                    |
| IRD- French research institute for development                       | <a href="http://www.polynesie.ird.fr/">http://www.polynesie.ird.fr/</a><br>On coral reefs in FP:<br><a href="http://www.com.univ-mrs.fr/IRD/atollpol/irdpoly/acirdpol.htm">http://www.com.univ-mrs.fr/IRD/atollpol/irdpoly/acirdpol.htm</a>  | Institut de recherche pour le développement |
| IFREMER Institut Français de Recherche pour l'Exploitation de la Mer | <a href="http://archimer.ifremer.fr/doc/2008/publication-4558.pdf">http://archimer.ifremer.fr/doc/2008/publication-4558.pdf</a>  |   |
| UPF-University   | <a href="http://www.upf.pf/?lang=fr">http://www.upf.pf/?lang=fr</a>  | Universite de la Polynesie                  |
| IFRECOR – Initiative Française pour les récifs coralliens            | <a href="http://www.ifrecor.org/comite-local/polynesie-francaise/plan">http://www.ifrecor.org/comite-local/polynesie-francaise/plan</a>  | Plan d'action                               |
| Global Coral Reef Monitoring Network GCRMN                           | <a href="http://www.icriforum.org/sites/default/files/gcrmn2000.pdf">http://www.icriforum.org/sites/default/files/gcrmn2000.pdf</a>  | Chapter 11 on FP                            |
| Reefbase   | <a href="http://www.reefbase.org/global_database/default.aspx?section=s1">http://www.reefbase.org/global_database/default.aspx?section=s1</a><br><br><a href="http://www.reefbase.org/download/reference_image.aspx?filename=StatusCR_FrPolynesia_2004_Table1h.gif">http://www.reefbase.org/download/reference_image.aspx?filename=StatusCR_FrPolynesia_2004_Table1h.gif</a>   | Info on coral reefs in FP                   |
| IUCN   | Biodiversité d'Outre-Mer, éditions Roger Le Guen, Comité français de l'IUCN, 2013  | With a chapter on FP                        |
| IUCN on Invasive species in FP                                       | <a href="http://www.uicn.fr/IMG/pdf/3_UICN_2008_Especes_envahissantes_OM_-_Synthese_par_collectivite_et_annexes.pdf">http://www.uicn.fr/IMG/pdf/3_UICN_2008_Especes_envahissantes_OM_-_Synthese_par_collectivite_et_annexes.pdf</a><br><a href="http://especes-envahissantes-outremer.fr/pdf/lettre%20information/juillet_2013.pdf">http://especes-envahissantes-outremer.fr/pdf/lettre%20information/juillet_2013.pdf</a> |   |
| EVI -Environ index   | <a href="http://www.vulnerabilityindex.net/EVI%20Country%20Profiles/PF.pdf">http://www.vulnerabilityindex.net/EVI%20Country%20Profiles/PF.pdf</a>  | For FP                                      |
| EU   | <a href="http://ec.europa.eu/europeaid/documents/aap/2013/af_aap_2013_pyf.pdf">http://ec.europa.eu/europeaid/documents/aap/2013/af_aap_2013_pyf.pdf</a><br><br><a href="http://ec.europa.eu/europeaid/where/octs_and_greenland/documents/french_polynesia_docup_signed.pdf">http://ec.europa.eu/europeaid/where/octs_and_greenland/documents/french_polynesia_docup_signed.pdf</a>   | Programming document with FP (10th EDF)     |
| EU- programmes tep vertes, Integre                                   | <a href="http://ec.europa.eu/development/icenter/repository/annex4_tep_vertes_fr.ppt">http://ec.europa.eu/development/icenter/repository/annex4_tep_vertes_fr.ppt</a><br><br><a href="http://web.presidence.pf/index.php/pr-presidence/547-reunion-du-comite-de-pilotage-du-programme-integre">http://web.presidence.pf/index.php/pr-presidence/547-reunion-du-comite-de-pilotage-du-programme-integre</a>                 |   |
| SPREP (Secretariat of the Pacific Regional Environment Programme)    | <a href="https://www.sprep.org/about-us">https://www.sprep.org/about-us</a>  |   |
| Secret Pacific Community SPC   | <a href="http://www.spc.int/images/stories/SPPU/JCS/EN/french%20polynesia%20-%20jcs%202009-2014%20-%20en.pdf">http://www.spc.int/images/stories/SPPU/JCS/EN/french%20polynesia%20-%20jcs%202009-2014%20-%20en.pdf</a>  | Plan for FP                                 |
| SOPAC- South Pacific Applied Geoscience Commission                   | <a href="http://www.sopac.org/">http://www.sopac.org/</a>  |   |
| CIA  | <a href="https://www.cia.gov/library/publications/the-world-factbook/geos/fp.html">https://www.cia.gov/library/publications/the-world-factbook/geos/fp.html</a>  | Sur la PF                                   |

## New Caledonia

Nouvelle-Calédonie 2025 – Schéma d'Aménagement et de Développement de la Nouvelle-Calédonie, novembre 2013

Rapport annuel IEOM 2012 Nouvelle-Calédonie, édition 2013

Code de l'environnement de la Province Sud, mai 2009

Code de l'environnement de la Province Nord, octobre 2008

Biodiversité d'Outre-Mer, éditions Roger Le Guen, Comité français de l'UICN, 2013 (chapitre sur NC)

Documents reçus des autorités:

Stratégie de la Province Sud pour le développement durable – 119 engagements au service des citoyens et pour une collectivité exemplaire

Plan d'action sur la biodiversité de la Nouvelle-Calédonie, version 14/03/06

Inventaire des programmes et des actions de la Province Nord susceptibles de contribuer au développement durable, novembre 2012

Rapport Nouvelle-Calédonie pour la Conférence régionale des Petits Etats Insulaires en Développement (Nations Unies), juin 2013

Rapport Rio+20, juillet 2012

Bilan d'actions pour la biodiversité en Nouvelle-Calédonie 2006-2010, version 01/03/2010

Stratégie conjointe CPS-Nouvelle-Calédonie, novembre 2013 (tableau Excel)

Sites internet

| Organisation  | Site internet   |
|---|---|
| Gouvernement de la Nouvelle-Calédonie                             | <a href="http://www.gouv.nc">www.gouv.nc</a>  |
| L'Etat en NC  | <a href="http://www.nouvelle-caledonie.gouv.fr/">http://www.nouvelle-caledonie.gouv.fr/</a>                   |
| Portail de la biodiversité en NC                                  | <a href="http://www.biodiversite.nc">www.biodiversite.nc</a>  |
| Institut de la statistique et des études économiques              | <a href="http://www.isee.nc">www.isee.nc</a>  |
| Ville de Nouméa   | <a href="http://www.noumea.nc">www.noumea.nc</a>  |
| Institut d'Emission d'Outre-Mer                                   | <a href="http://www.ieom.fr/nouvelle-caledonie">www.ieom.fr/nouvelle-caledonie</a>                            |
| Province des Iles Loyautés  | <a href="http://www.province-iles.nc/">http://www.province-iles.nc/</a>                                       |
| Province Sud  | <a href="http://www.province-sud.nc/portail">http://www.province-sud.nc/portail</a>                           |
| Province Nord   | <a href="http://www.province-nord.nc/accueil/default.asp">http://www.province-nord.nc/accueil/default.asp</a> |
| Direction de l'Industrie, des Mines et de l'Energie (DIMENC)      | <a href="http://www.dimenc.gouv.nc/">http://www.dimenc.gouv.nc/</a>   |
| Institut de Recherche pour le Développement (IRD)                 | <a href="http://nouvelle-caledonie.ird.fr">http://nouvelle-caledonie.ird.fr</a>                               |
| Agence des aires marines protégées                                | <a href="http://www.aires-marines.fr">http://www.aires-marines.fr</a>   |
| Chambre d'agriculture Nouvelle-Calédonie                          | <a href="http://www.canc.nc/">http://www.canc.nc/</a>   |
| Documentation juridique de la Nouvelle-Calédonie                  | <a href="http://www.juridoc.gouv.nc/">http://www.juridoc.gouv.nc/</a>   |
| IFRECOR – Initiative Française pour les récifs coralliens         | <a href="http://www.ifrecor.nc">http://www.ifrecor.nc</a>   |
| Eco-organisme TRECODEC  | <a href="http://www.trecodec.nc">http://www.trecodec.nc</a>   |
| Centre d'Initiation à l'Environnement en Nouvelle-Calédonie (CIE) | <a href="http://www.cie.nc/">http://www.cie.nc/</a>   |
| Observatoire de l'environnement – Province Sud Nouvelle-Calédonie | <a href="http://www.oeil.nc/">http://www.oeil.nc/</a>   |

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| Educational site                   | <a href="http://library.puc.edu/pitcairn/pitcairn/index.shtml">http://library.puc.edu/pitcairn/pitcairn/index.shtml</a>  |                                      |
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| UK Foreign and Commonwealth Office | On PIT:<br><a href="http://www.fco.gov.uk/servlet/Front?pagename=OpenMarket/Xcelerate/ShowPage&amp;c=Page&amp;cid=1007029394365&amp;a=KCountryProfile&amp;aid=1018965247336">http://www.fco.gov.uk/servlet/Front?pagename=OpenMarket/Xcelerate/ShowPage&amp;c=Page&amp;cid=1007029394365&amp;a=KCountryProfile&amp;aid=1018965247336</a>   | On Pitcairn as an Overseas Territory |

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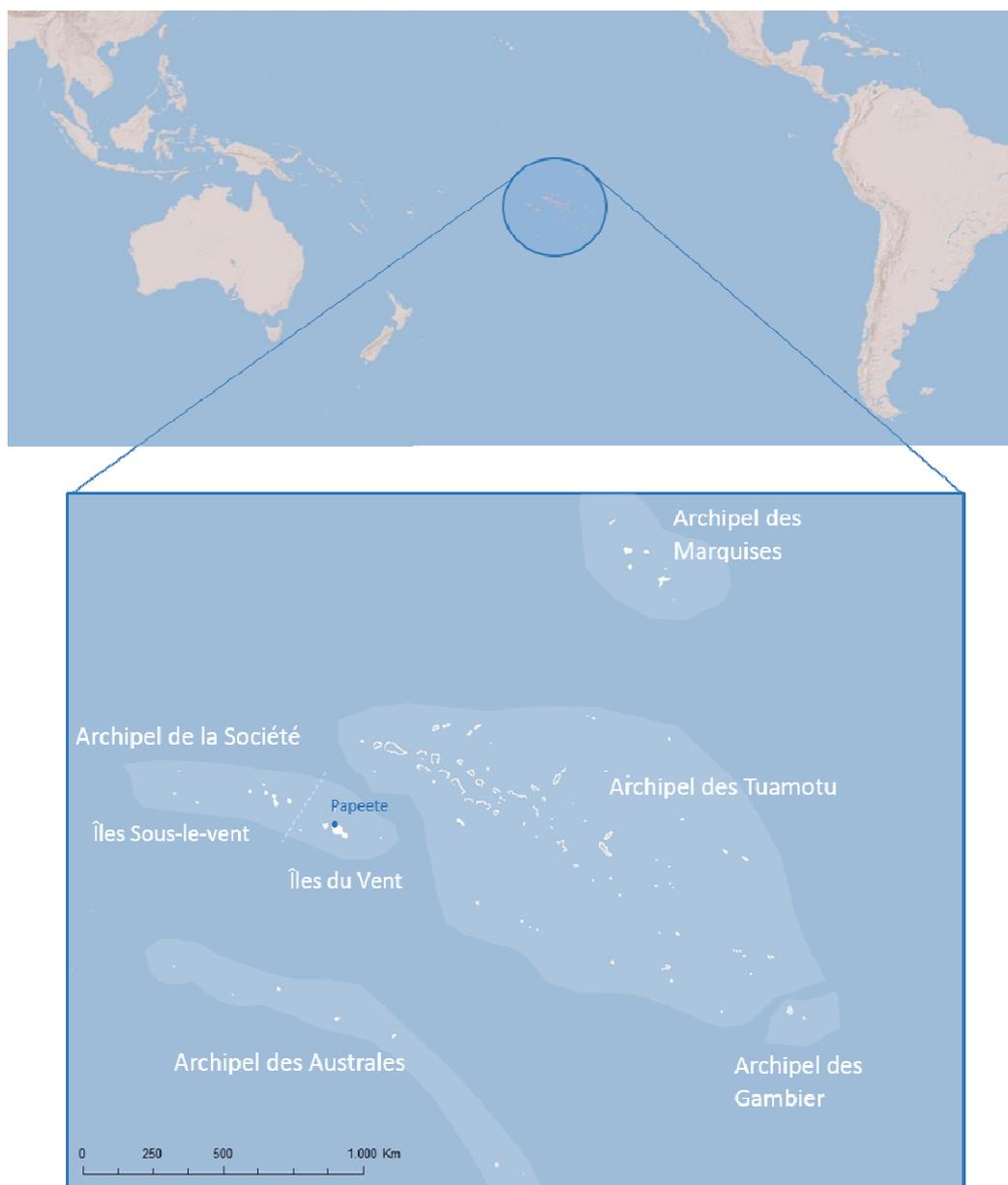
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| IUCN   | <a href="http://iucn.org/about/union/secretariat/offices/europe/activities/overseas/overseas_list/overseas_wallis.cfm">http://iucn.org/about/union/secretariat/offices/europe/activities/overseas/overseas_list/overseas_wallis.cfm</a><br><br><a href="http://www.uicn.fr/IMG/pdf/12_UICN_2003_Biodiv_OM_-_Wallis_et_Futuna.pdf">http://www.uicn.fr/IMG/pdf/12_UICN_2003_Biodiv_OM_-_Wallis_et_Futuna.pdf</a>  | On WF            |
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| EU- programmes tep vertes, Integre                               | <a href="http://ec.europa.eu/development/icenter/repository/annex4_tep_vertes_fr.ppt">http://ec.europa.eu/development/icenter/repository/annex4_tep_vertes_fr.ppt</a><br><a href="http://web.presidence.pf/index.php/pr-presidence/547-reunion-du-comite-de-pilotage-du-programme-integre">http://web.presidence.pf/index.php/pr-presidence/547-reunion-du-comite-de-pilotage-du-programme-integre</a>  |   |
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| French Ministry Ecology and SD                                   | <a href="http://www.ecologie.gouv.fr">www.ecologie.gouv.fr</a><br>sur W&F:<br><a href="http://www.developpement-durable.gouv.fr/spip.php?page=article&amp;id_article=5689">http://www.developpement-durable.gouv.fr/spip.php?page=article&amp;id_article=5689</a>   | Ministère de l'Écologie et Développement durable                          |
| French Overseas Ministry on W&F                                  | <a href="http://www.outre-mer.gouv.fr/?-wallis-et-futuna-.html">http://www.outre-mer.gouv.fr/?-wallis-et-futuna-.html</a>   | Ministère de l'Outre-Mer  |

ANNEX A :  
FRENCH POLYNESIA

# ENVIRONMENTAL PROFILE

## FRENCH POLYNESIA



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## SUMMARY

French Polynesia is a *Collectivité d'Outre-Mer* (COM) situated in the South Pacific. It has a population of 268 207 residents<sup>1</sup> who live on 76 of the 118 islands. With an oceanic surface area of 2.5 million km<sup>2</sup>, the 5 archipelagos could cover all of Europe.

French Polynesia is actively engaged in the protection of its environment. It is conscious of the threat of climate change as many of its islands are at a very low elevation and could disappear with sea level rise. Significant progress has been made in several areas related to the environment: wastewater treatment<sup>2</sup>, renewable energy<sup>3</sup>, waste disposal and management, and several studies/analyses and concerted action proposals have been developed (on climate, waste, forests, endangered marine species, etc.).

## 1 BACKGROUND INFORMATION

|                                 |   |
|---------------------------------|---|
| <b>Territory name</b>           | French Polynesia                        |
| <b>Region</b>                   | South Pacific                           |
| <b>Area</b>                     | 3 660 km <sup>2</sup>                   |
| <b>Maritime claims</b>          | EEZ : approx. 5 million km <sup>2</sup> |
| <b>Population</b>               | 268 207 residents (August 2012; ISPF)   |
| <b>GDP per capita</b>           | 17933 € (2009) <sup>4</sup>             |
| <b>Literacy rate</b>            | 98%                                     |
| <b>Unemployment rate</b>        | 21.8% (2012 census; ISPF)               |
| <b>% below the poverty line</b> | 20% (CIA)                               |

French Polynesia was given French overseas territory status in 1946. From 1984 to 2004, its status has evolved from internal autonomy to full autonomy. Since 2004, French Polynesia enjoys extensive legislative powers and broad political autonomy as an overseas collectivity.<sup>5</sup>

The president of French Polynesia is elected by its Assembly and the representative of France is named High Commissioner. The locally elected assembly has legislative power but laws must also be approved by the *Conseil d'État* (Council of State) of the French Republic<sup>6</sup>.

The country is made up of 5 archipelagos comprising a total of 118 islands. The two central archipelagos, Tuamotu and Gambier, are made of very low elevation coral islands forming atolls. These islands do not reach more than 2-3 meters above sea level. The 3 other archipelagos (the Society, Marquesas and Austral Islands) are made up of younger islands, where rocky, uneven mountains occur. The highest peak is Mount Orohena (2 241 m). The capital city is Papeete on the island of Tahiti.

**The Tuamotu (160km<sup>2</sup>) and Gambier archipelagos (40km<sup>2</sup>)** have a total of 85 atolls and lagoons. Rangiroa is the second largest atoll in the world, with a lagoon spanning 80km by 30km. Makatea is one of only three islands in the Pacific Ocean made of phosphate rock. There is also cobalt in French Polynesia, but this resource is not exploited. The Gambier archipelago shelters a higher island at its centre (Mangareva) surrounded by a ring of 16 smaller islands and remains of a huge volcanic crater.

**The Marquesas archipelago (1040km<sup>2</sup>)** is made up mainly of mountainous islands rising over 1000m above the Pacific Ocean. Only 6 of the 12 islands are inhabited. This archipelago is the youngest geologic formation of French Polynesia.

1 2012 census, Institut de la statistique de la Polynésie française (FP statistical institute)

2 Bora Bora has been awarded the EU's Blue Flag for its swimming waters + Punaauia+Moorea+Papeete.

3 For example, the Tuamutu and Gambier archipelagos have solar hybrid power stations.

4 <http://www.ispf.pf/themes/EconomieFinances/Compteseconomiques.aspx>

5 Regulated by article 74 of the French constitution and the modified institutional act n° 2004-192 .

6 <http://www.polynesie-francaise.biep.fonction-publique.gouv.fr/common/page/45>

**The Society archipelago (1600km<sup>2</sup>)** joins together the Windward Islands (Tahiti, Moorea, Tetiaroa, Maiao, Mehetia, Maupihaa, Tupai, Manuae and Motu One) and the Leeward Islands (Raiatea, Tahaa, Huahine, Bora Bora and Maupiti).

**The Austral archipelago (150 km<sup>2</sup>)**, the most southerly of French Polynesia, is composed of seven islands (6 mountainous islands and one atoll).<sup>7</sup>

Ancient coral reefs of about 10 000 year are currently below the surface at a depth of more than 60m. These are unique features in Polynesia and very rare in the Pacific.

The climate is tropical. French Polynesia finds itself in a cyclonic area (except for the Marquesas archipelago which is less exposed).

Streams, lagoons and the ocean represent important fish resources both for local consumption and the export market.

The Windward Islands comprise 75% of the population<sup>8</sup>. There is a constant flow of population from other islands into Tahiti.

### **Economy**

The GDP per capita reached € 17 900 in 2009. Despite a 6.9% growth in cruise passengers compared to the previous year, tourism numbers in French Polynesia are strongly affected by land-based tourism (-4.4%) and have gone down by 2.7% in 2013.<sup>9</sup> The pearl sector's continues to decline with raw pearl export value, export volume and sale price decreasing. In 2012, approximately 7.7 million pearls were exported, a decrease of about 8% compared to 2011. Sales value has diminished by 4% and has reached about 7 billion CFP. The public works sector, mainly focused on port, airport and road infrastructure redevelopment (as well as sewage works projects financed by the European Union) also decreased in 2012. The primary sector represented only 3% of GDP in 2007. Fishing yields increased sharply in 2012, with an 86% growth in fish export value compared to 2011.<sup>10</sup>

## **2 BIOGEOGRAPHY, ENDEMISM AND IMPORTANCE FOR GLOBAL BIODIVERSITY**

French Polynesia has the greatest diversity of coral reef formations and atolls in the world. Coral reefs are well studied there.<sup>11</sup> Their total area covers 12 800 km<sup>2</sup>.<sup>12</sup> There are barrier reefs, fringing reefs and atolls (open, closed) as well as platforms.

The 7 atolls of the commune of Fakarava were designated as a 'biosphere reserve' under the MAB (Man and Biosphere) UNESCO program. In addition, the Moorea lagoon has been recognized as a Ramsar Wetland of International Importance since 2009. Furthermore, the Marquesas archipelago was identified as an "ecologically and biologically significant marine area at the international level" (EBSA). Thirty-one sites are placed by the environmental code into one of the categories contained in the resolution on nature protection (resolution n°1485 CM of 27 September 2011)

The Marquesas are an atypical marine ecosystem. Also, although this archipelago is far from the core of Indo-Pacific biodiversity, its isolation from other islands has created exceptional endemism for numerous marine species. Furthermore, being near the equator, the Marquesas' waters are very rich in plankton.

7 <http://www.environnement.pf/spip.php?rubrique41>

8 [http://www.insee.fr/fr/themes/document.asp?ref\\_id=ip1474](http://www.insee.fr/fr/themes/document.asp?ref_id=ip1474)

9 <http://www.ispf.pf/docs/default-source/tb-tourisme/tb-2013.pdf?sfvrsn=8>

10 [http://www.ieom.fr/IMG/pdf/ra2012\\_polynesie\\_francaise.pdf](http://www.ieom.fr/IMG/pdf/ra2012_polynesie_francaise.pdf)

11 [archimer.ifremer.fr/doc/2008/publication-4558.pdf](http://archimer.ifremer.fr/doc/2008/publication-4558.pdf)

12 Data supplied by the French Ministry for Sustainable Development (webpage on IFRECOR and French Polynesia). According to the Reefbase database, French Polynesia is home to 6000 km<sup>2</sup> of coral.

Estimates of coastal fish abundance, fishing yields and the sighting of many marine mammals during scientific missions confirm this<sup>13</sup>.

A recent publication by the IUCN contains a species census, both terrestrial and marine, on which the table below is based.<sup>14</sup>

| Terrestrial biodiversity                      |  |   |   |  |
|---|--|---|---|--|
| Flora   |  | Invertebrates   |   |  |
| Mosses and liverworts                         | Vascular plants                              | Molluscs  | Insects   | Crustaceans  |
| 218 species of liverworts                     | 885 species : 334 indigenous and 551 endemic | 525 species or sub-species of snails (95% rate of endemism) ; 15 freshwater species (9 endemic) | 1000 identified species (far below the actual number) | Fresh water : about 20 species (2 endemic) ; a dozen terrestrial species |
| Vertebrates                                   |  |   |   |  |
| Fish  | Amphibians                                   | Reptiles  | Birds   | Mammals  |
| 37 indigenous species of which 14 are endemic | No indigenous species                        | 9 species (skinks and geckos) + 3 introduced (geckos and turtle)                                | 36 species (27 endemic)                               | No indigenous species (one extinct dogfish); several introduced species  |

| Marine and coastal biodiversity                     |  |  |   |
|---|--|--|---|
| Flora   | Invertebrates                                      |  |   |
| Algae   | Corals   | Molluscs   | Crustaceans   |
| Min. 425 indigenous species, of which 2 are endemic | Min. 190 species                                   | 2414 identified species; maximal endemism in the Marquesas (20%) | 1013 documented species (decapods and stomatopods only) |
| Vertebrates   |  |  |   |
| Fish  | Reptiles   | Birds  | Mammals   |
| 1214 fish species of which 20 sharks and 7 rays     | One pelagic sea snake and 5 species of sea turtles | 27 nestling species (3 endemic sub-species)                      | 24 species  |

### 3 STATE OF THE ENVIRONMENT

#### 3.1 OVERVIEW

##### Waste

Almost 80% of waste is generated by the Windward Islands population. This demands a processing system adapted to this unequal distribution. On Tahiti, processing has been structured and expanded. Many constraints and potential improvements have been identified, but they mainly consist of optimizations to the systems already in place. Since 1998, the semi-public company *Société Environnement Polynésien* (SEP; Polynesian Environment Company) is responsible (for all of French Polynesia's archipelagos) for "the study and realization of domestic, industrial and other waste processing operations and actions, the protection and rehabilitation of sites and the conservation of natural environments".<sup>15</sup> A *syndicat mixte ouvert* (SMO; unrestricted public-sector union), created in November of 2012, took the place of the SEP on the Windward Islands.<sup>16</sup>

13 <http://www.polynesie.ird.fr/toute-l-actualite/l-actualite-scientifique-en-polynesie-francaise>

14 Biodiversité d'Outre-Mer, éditions Roger Le Guen, Comité français de l'IUCN, 2013

15 <http://www.environnement.pf/spip.php?article197>

16 <http://www.polynesie-francaise.pref.gouv.fr/Communes-de-Polynesie-francaise/Intercommunalite/Les-differentes-structures-intercommunales-existantes/Les-syndicats-mixtes>

## Wastewater and drinking water distribution

Communes are responsible for wastewater treatment. French Polynesia has begun to formulate its sectoral water policy (including wastewater treatment) by carrying out an overview of the hydraulic sector. The water policy will be developed and implemented in accordance with the principles and objectives of the association and of the Paris Declaration (see below, Politics section).

For wastewater, almost all users on Bora Bora are connected to the infrastructure, and 2700m<sup>3</sup> of wastewater are collected and processed per day. There are four joint treatment plants, two of which on Bora Bora, one on Punaauia and one on Moorea (Haapiti tourist area). Projects are under development on Papeete.<sup>17</sup>

A *service public à vocation industrielle et commerciale* (SPIC; commercial-industrial public utility) should be set up for drinking water by the communes to ensure proper drinking water production and distribution. The Tuamotu-Gambier subdivision is working actively to help applicant communes set up their SPIC. In 2011, the Anaa-Faaite commune became the first of the Tuamotu to see its drinking water project be completed, followed by Hereheretue and Tatakoto in early 2012.<sup>18</sup>

## 3.2 MAIN CHALLENGES

The Environmental Vulnerability Index calculated in 2005 classifies French Polynesia as *Extremely Vulnerable*. Among the 6 main problems identified on the Territory: its isolation, the risk of landslides, endangered species and species on the verge of extinction.<sup>19</sup>

### Challenge 1 - Climate change - Severe

Because of its geomorphology, French Polynesia is one of the Pacific territories which will be the most affected by sea level rise. As a large portion of the territory is composed of very low elevation coral islands, sea level rise will have a major impact. The islands and atolls will disappear in the longer term. The impact will be considerable even on mountainous islands, as population tends to concentrate itself along small coastal strips.

But French Polynesia bears some responsibility in the climate change problem. The country's overall activity generates approximately 800 000 tons of CO<sub>2</sub> emissions per year, or about 3 tons per resident.<sup>20</sup> According to the IPCC's forecasts<sup>21</sup>, maximum allowable emissions should not exceed 1.8 tons of CO<sub>2</sub> per person per year, about half the emissions of an average Polynesian. Nearly 53% of CO<sub>2</sub> emissions in Polynesia stem from the transport sector and 45% from (non-renewable) electricity production.

The first "overview of climate change challenges in French Polynesia" was ordered by the Polynesian government from UC Berkeley at Moorea. Elaborated with the participation of a large network of Polynesian experts, it takes stock of climate projections at the level of the country, its level of greenhouse gas emissions, its particular vulnerabilities and adaptation and mitigation initiatives.<sup>22</sup>

The conference organized in Papeete in 2011 speaks on coastal development policies in the context of adaptation to climate change.<sup>23</sup>

17 <http://www.environnement.pf/spip.php?rubrique78>

18 <http://www.polynesie-francaise.pref.gouv.fr/Les-Subdivisions2/des-iles-Tuamotu-Gambier/Environnement-et-developpement-durable>

19 <http://www.vulnerabilityindex.net/EVI%20Country%20Profiles/PF.pdf>

20 [http://www.environnement.pf/IMG/pdf/Brochure\\_CC\\_DIREN\\_Gump.pdf](http://www.environnement.pf/IMG/pdf/Brochure_CC_DIREN_Gump.pdf)

21 The Intergovernmental Panel on Climate Change

22 DIREN: [http://www.environnement.pf/IMG/pdf/Brochure\\_CC\\_DIREN\\_Gump.pdf](http://www.environnement.pf/IMG/pdf/Brochure_CC_DIREN_Gump.pdf)

23 [www.developpement-durable.gouv.fr/IMG/pdf/ONERC\\_actes-colloques-web-fr.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/ONERC_actes-colloques-web-fr.pdf)

| Impact   | Severity | Comments   |
|--|----------|--|
| Coastal flooding                                 | ●        | The islands have very low elevation and are therefore vulnerable to sea level rise. As the main urban centres are coastal, sea level rise will force people to evacuate. |
| Disruption of fishing activities                 | ◐        | The fishing sector is a substantial economic activity in FP. Climate change may affect this sector in unpredictable ways.  |
| Pearl culture                                    | ●        | Rapid sea level rise will heighten the impact of meteorological conditions (swells, wind) on most pearl farms.   |
| Endangered coral reefs (bleaching, pH reduction) | ●        | The islands are surrounded by coral reefs, currently in decent condition but already subject to multiple threats.  |
| Mangrove degradation                             | ○        | There are few mangroves in French Polynesia (Moorea, Raiatea, Huahine, Tetiaroa, Bora Bora and Tahiti).  |
| Groundwater salinization                         | ◐        | The islands have limited groundwater resources.  |
| Tourism industry                                 | ●        | The tourism industry represented 40% of own resources for French Polynesia in 2013 (164 393 tourists in 2013).   |
| More frequent and violent storms                 | ●        | This is a serious threat; FP is subject to tropical storms and cyclones, already a threat to beaches.  |
| ○ Nil      ◐ Slight      ◐ Moderate      ● Heavy |          |  |

## Challenge 2 - Nature conservation: species and spaces - Severe

Protected areas (terrestrial and marine)

French Polynesia has 31 protected sites and monuments according to resolution 1485 CM of September 27th 2011. Among these, we find two strict nature reserves, two territorial parks and four habitat or species management areas. The population is growing and natural forest conservation and the preservation of a unique but very fragile primary flora represent a significant management challenge.

Six of the above referred eight sites are uninhabited islands, all listed as nature reserves in the early 1970's. There are only two parks and nature reserves in all of the inhabited islands: the Te Faaiti territorial park on Tahiti, spanning 750 ha and listed in 1989, and the Vaikvi mixed area (park and nature reserve) on Ua Huka, in the Marquesas, made up of 240 ha and listed in 1996. These protected areas are not always of high ecological concern and/or conservation priorities (meaning characterized by a high number of rare, threatened or protected endemic species). They only represent a small number of different natural habitats and types of vegetation. Eiao for example is already in a state of advanced degradation due to herbivorous overgrazing and invasive introduced plant species.<sup>24</sup>

In the marine sector, since 1971, French Polynesia has been setting up MPAs (Marine Protected Areas) with different objectives (management of marine areas, listed sites and regulated fishing areas). For example, two uninhabited atolls (Scilly and Bellinghausen), the sand bank situated on top of a platform of reefs (Motu One) and the inhabited islets of Eiao, Hatutaa, Mohotani in the Marquesas Islands are nature reserves.

There are traditional management measures taken by the populations named 'rahui'. These are used in particular on Rapa and Maiao. In addition, French Polynesia has marine sanctuaries covering the whole of the waters under its jurisdiction for marine mammals and sharks. These are the most extensive sanctuaries in the world.<sup>25</sup>

Dry forest: No dry forests, cloud forests, coastal forests on limestone plateaus or elevated shrublands are protected, despite being the rarest types of vegetation in French Polynesia.<sup>26</sup>

<sup>24</sup> According to SOP (Polynesian Ornithology Society) or see: <http://www.environnement.pf/spip.php?rubrique63>

<sup>25</sup> Information supplied by Ms. S. Duron of French Polynesia's Marine Protected Areas Agency.

<sup>26</sup> Cirad: [http://bft.cirad.fr/cd/BFT\\_291\\_25-40.pdf](http://bft.cirad.fr/cd/BFT_291_25-40.pdf) page 33

Invasive species: according to the IUCN, the invasive animal and plant species problem is very serious<sup>27</sup>. Early detection and rapid response capabilities remain very limited. The *Stratégie Nationale pour la Biodiversité* (SNB; National Biodiversity Strategy) for the overseas territories mentions in particular for French Polynesia: "the extinction of 42 endemic snail species since 1972 due to an exogenous snail introduced to combat another predator"<sup>28</sup>. Efforts to restore habitats are currently non-existent according to the SOP-Manu association, the *Société d'Ornithologie de Polynésie* (Ornithological Society of Polynesia).<sup>29</sup>

Birds: Again according to SOP-Manu, the association in charge of bird and bird habitat protection, French Polynesia is the country with the 16th highest percentage of endangered species in the world, and as a French territory (continental and overseas) harbours the most endangered species. Among its endemic terrestrial birds, 6 species are critically endangered, 7 are endangered, 7 are vulnerable and 6 species of seabirds are threatened.<sup>30</sup>

### **Challenge 3 - Coral reef degradation and destruction and lagoon pollution - Severe**

French Polynesia's reef formations are among the best known in the world. The conditions of the reefs and of the disruptions they undergo have been the subject of many studies. According to Bernard Salvat (professor emeritus), the construction of hotel infrastructure has led to many disruptions to the coastal environment: extraction of coral matter, filling in of fringing areas, shoreline modification, various types of pollution.<sup>31</sup>

The other threats and causes of lagoon and ocean pollution in French Polynesia are as follows:

- Population concentration in a few areas of the Society Islands and in particular in Papeete (the capital), a city which has witnessed significant growth from populations of other islands, as well as Bora Bora and Moorea, which contain many tourism facilities.
- Waste related to Tahiti's pearl farming (biodeposition due to pearl oyster cleaning, solid waste - shells, collection or culturing lines, galvanized steel structures abandoned in the lagoon) can eventually lead to lagoon eutrophication and directly impact the food chain starting with phytoplankton, essential to the development of lagoon fauna (molluscs, fish, crustaceans).
- The lack of stormwater sewerage particularly in islands with high elevations disturbs the lagoons during periods of heavy rain.
- Some unprocessed industrial emissions.

Waste dumping is also a problem. For a few decades now, there has been a large increase in waste volume, correlated with population and import growth (over 40% in 10 years) and there are new kinds of waste found, some not decomposable and sometimes more dangerous. Furthermore, inter-island freight is very expensive and many logistical hurdles complicate waste management planning.<sup>32</sup>

In French Polynesia, waste production can reach up to 470 kg per resident per year. The characterization studies carried out successively in 2011 and 2012 show that a significant portion of this waste could be recovered and valorised, through composting or recycling for example.<sup>33</sup>

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27 [http://www.uicn.fr/IMG/pdf/3\\_UICN\\_2008\\_Especies\\_envahissantes\\_OM\\_-\\_Synthese\\_par\\_collectivite\\_et\\_annexes.pdf](http://www.uicn.fr/IMG/pdf/3_UICN_2008_Especies_envahissantes_OM_-_Synthese_par_collectivite_et_annexes.pdf) pages 133 and following

28 [http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN\\_14\\_-\\_SNB\\_-\\_PA\\_Outre-Mer.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN_14_-_SNB_-_PA_Outre-Mer.pdf) page 2.

29 <http://www.manu.pf/>

30 <http://www.manu.pf/les-oiseaux/statut-et-conservation/>

31 *Revue Écologique (Terre Vie)*, vol. 63, 2008 : « Le suivi de l'état des récifs coralliens de Polynésie Française et leur récente évolution » by Bernard Salvat et al.

32 <http://www.environnement.pf/spip.php?article197> étude déchets 2012

33 <http://web.presidence.pf/index.php/cm/625-communique-du-conseil-des-ministres-du-23-octobre-2013>

## 4 ENVIRONMENTAL GOVERNANCE

In those overseas collectivities with a special internal autonomy status (French Polynesia, New Caledonia, Wallis and Futuna), biodiversity conservation is mainly under local jurisdiction. Territorial authorities adopt their own laws and instruments in this field, inspired or not by the legal requirements of the French law. The measures taken for the sustainable conservation and management of biodiversity in overseas collectivities are therefore diverse and sometimes use the same tools as in metropolitan France.<sup>34</sup>

Within the framework of its constitution, France is responsible for French Polynesia's foreign affairs, in particular as concerns the UN. France remains responsible for the justice system, monetary affairs, defense and multilateral environmental agreements.

### 4.1 INSTITUTIONS

Environmental protection is the territorial government's responsibility, making use of a Ministry of Tourism, Ecology (MTE), culture, and aerial transportation<sup>35</sup>. The president and the other ministers are responsible for a variety of subjects related to sustainable development, such as Territorial and Energy Planning (President of French Polynesia), fishing, aquaculture, pearl farming, research and mines (Marine Resources Minister, MRM), land affairs (Housing Minister, MLA), public works and urban planning (Public Works Minister, MET), agriculture and livestock (Agriculture Minister, MAA).<sup>36</sup>

The *Conseil économique, social et culturel* (CESC; Economic, Social and Cultural Council) also covers all political fields.<sup>37</sup> The council has for example given its opinion on the development of public beaches.<sup>38</sup>

The *Direction de l'environnement* (DIREN; Environmental Department) is French Polynesia's governmental service in charge of preserving and promoting FP's natural environments and resources. It is located in Papeete and is made of 5 departments:<sup>39</sup>

- general and legal affairs;
- installations listed for environmental protection;
- protection of natural environments and resources;
- biodiversity management;
- environmental education.

DIREN has a staff of 25 agents, all assigned to Tahiti, and works with a large number of partners, see annex 1.

### 4.2 POLICIES, STRATEGIES, PLANS, PROGRAMS

There exist several strategic plans concerning the environment and are implemented in French Polynesia: *Plans de Gestion des Espaces Maritimes* (PGEM; Maritime Spaces Management Plans)<sup>40</sup>, *Plans Généraux d'Aménagement* (PGA; General Development Plans)<sup>41</sup>, *Plans d'Aménagement de Détail* (PAD; Specific

34 SNB - Stratégie Nationale pour la Biodiversité- Plan d'action des collectivités d'outre-mer 2008-2010.[http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN\\_14\\_-\\_SNB\\_-\\_PA\\_Outre-Mer.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN_14_-_SNB_-_PA_Outre-Mer.pdf)

35 [http://web.presidence.pf/files/Gouvernement\\_de\\_la\\_Polynésie\\_française\\_-\\_18\\_Novembre\\_2013.pdf](http://web.presidence.pf/files/Gouvernement_de_la_Polynésie_française_-_18_Novembre_2013.pdf) and <http://www.environnement.pf/spip.php?rubrique128>

36 <http://web.presidence.pf/index.php/extensions>,

37 <http://www.cesc.pf/index.php/actualites-cesc/658-rapport-sur-l-amenagement-des-plages-publiques-adopte-a-l-unanimité>

38 <http://www.cesc.pf/>

39 <http://www.environnement.pf/spip.php?rubrique106>

40 <http://www.urbanisme.gov.pf/spip.php?rubrique116>

41 <http://www.urbanisme.gov.pf/spip.php?rubrique31>

Development Plans)<sup>42</sup> and *Plans de Prévention des Risques naturels* (PPR; Natural Hazards Prevention Plans)<sup>43</sup>. A short overview of the approved plans is in annex 2.

### **Protected environments and species**

Since 1971, French Polynesia is setting up Marine Protected Areas (MPA): maritime spaces management plans (PGEM), listed sites and regulated fishing areas. Some of these areas are recognized internationally through the UNESCO's 'Man and Biosphere' program (Fakarava atolls) or the Ramsar convention on wetlands of international significance (Moorea). Furthermore, French Polynesia has a marine mammal sanctuary extending over all the waters under its jurisdiction. Concurrently, there are traditional management measures taken by the populations named 'rahui'. These are used in particular on Rapa and Maiao.<sup>44</sup>

DIREN coordinates a nature protection policy. A 2013-2017 action plan was tailored for flagship species (marine mammals, sea turtles, sharks)<sup>45</sup> and action plans are currently underway for avifauna and threatened endemic flora.

The French Protected Marine Spaces Agency provides support to Polynesian public policy in terms of marine environment and resource protection and management. This agency has conducted a number of studies and participates in certain programs (Polynesian eco-regional marine analysis, REMMOA multidisciplinary campaigns on marine megafauna, PAKAIHI I TE MOANA Marquesas marine biodiversity, PALIMMA marine cultural heritage, a simulation of an integrated management plan of the Opunohu valley<sup>46</sup>, etc.) and also provides support to the managers of Moorea's PGEM.<sup>47</sup>

### **Waste**

A preliminary framework waste agreement has been signed by the government and the ADEME (French Environment and Energy Management Agency), whose goal is to implement a global and sustainable sectoral waste management policy. Concrete actions: 1- the first EWWR (European Week for Waste Reduction) in French Polynesia. 2- an assessment of waste sources and prospective analysis of waste management organization. This first territory-wide study strives to better our knowledge of household and similar waste sources and to define organizational principles for the management of this waste (logistical guidelines, identification of relevant procedures, infrastructure needs ...).<sup>48</sup> DIREN has developed numerous plans and strategies<sup>49</sup> for different management procedures according to the type of waste.<sup>50</sup> This has been developed with support from ADEME<sup>51</sup> from 2012 to 2013.

### **Drinking water and treatment**

There is no available sectoral water policy; its preparation has however begun. Communes are responsible for wastewater treatment. The country wishes to take a leadership role in the development and implementation of the sectoral water and water treatment policy. In 2010, the country created the committee in charge of the sectoral water policy. This committee will be in charge of the development:<sup>52</sup>

- of French Polynesia's sectoral water policy;
- of the water strategy;

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42 <http://www.urbanisme.gov.pf/spip.php?rubrique75>

43 <http://www.urbanisme.gov.pf/spip.php?rubrique121>

44 <http://www.aires-marines.fr/L-Agence/Organisation/Antennes/Antenne-Polynesie>

45 <http://www.environnement.pf/spip.php?article193>

46 E.Besson, SD.Duron, 2011

47 [www.aires-marines.fr](http://www.aires-marines.fr)

48 <http://www.environnement.pf/spip.php?article197>

49 Following studies on "The 'local' waste management problem in island environments", "The Windward Islands waste management system (Tahiti and Moorea)" and "The waste management system in the archipelagos excepting the Windward Islands".

50 <http://www.environnement.pf/spip.php?rubrique86>

51 <http://www.polynesie-francaise.pref.gouv.fr/Les-services-de-l-Etat/ADEME>

52 <http://www.environnement.pf/spip.php?article103>

- of the sectoral budget to be allocated to the territorial action program affiliated to the sectoral water policy.

Drinking water and wastewater treatment are one of the priorities on the country/state level (2008-2014 Projects Contract).<sup>53</sup>

### Energy

A joint strategy with ADEME<sup>54</sup> was implemented in the energy sector from 2010 to 2013. The objectives were:

- To improve knowledge of renewable energy development potential;
- To promote energy control processes (use reduction, efficiency);
- To provide assistance during the development of projects falling within its scope.<sup>55</sup>

### Natural hazards

The urban planning department<sup>56</sup> is developing *Plans de Prévention des Risques* (PPR; Risk Prevention Plans) for natural hazards. The Punaauia plan has been approved. Charting the development procedures shows progress in 47 communes (out of a total of 48).<sup>57</sup>

## 4.3 LEGAL FRAMEWORK AND LAW ENFORCEMENT

The main legal documents in the environmental sector are:

- Resolution n° 95-257 AT of 14 December 1995 relative to ecology<sup>58</sup>
- French Polynesia's environmental code<sup>59</sup>
- French Polynesia's urbanism code<sup>60</sup>
- Country law n°2013-12 APF of 6 May 2013 regulating, for the purposes of biosecurity protection, the introduction, import, export and inter-island transport of living organisms and of their derivatives.<sup>61</sup>

French Polynesia's protected and/or managed natural spaces are under the environmental code, urbanism code (particular parts of the General Development Plans or of the Marine Spaces Management Plans) or specific orders from the Fishery Service (Marine and Mining Resources Management) (Regulated Fishing Areas).

The urbanism code includes the foreseeable natural hazards prevention plan.<sup>62</sup>

For impact assessments, the environmental code distinguishes<sup>63</sup>: Environmental Impact Assessments (EIA) and *Notices d'Impact sur l'Environnement* (NIE; Environmental Impact Notices), kept for projects of lesser importance. There is an obligation to inform those directly concerned.<sup>64</sup>

France is a signatory to a number of multilateral environmental agreements. French Polynesia has agreed to follow all MEAs which France has ratified with the exception of the Kyoto protocol on climate change.

53 <http://haut-commissariat-polynesie-francaise.pf/ez/index.php/fre/Media/Images/Le-Haut-Commissariat/Fiche-presentation-Contrat-de-projets> or see 10th EDF: [http://ec.europa.eu/europeaid/documents/aap/2013/af\\_aap\\_2013\\_pyf.pdf](http://ec.europa.eu/europeaid/documents/aap/2013/af_aap_2013_pyf.pdf)

54 2011 ADEME report : <http://www.polynesie-francaise.pf/les-services-de-l-etat/ade-me>

55 [http://www.polynesie-francaise.pf/content/download/5210/34018/file/Rapport\\_d%27activiteADEME2011.pdf](http://www.polynesie-francaise.pf/content/download/5210/34018/file/Rapport_d%27activiteADEME2011.pdf)

56 <http://www.urbanisme.gov.pf/> <http://www.urbanisme.gov.pf/spip.php?rubrique33>

57 <http://www.urbanisme.gov.pf/spip.php?rubrique390>

58 <http://textes.assemblee.pf/internetdoc/texte/delib/1995-257.pdf>

59 [http://www.environnement.pf/IMG/pdf/code\\_env\\_30-11-06.pdf](http://www.environnement.pf/IMG/pdf/code_env_30-11-06.pdf)

60 <http://www.urbanisme.gov.pf/spip.php?rubrique126>

61 <http://textes.assemblee.pf/textes/documentbox.aspx?id=57069>

62 Le titre 8 du Livre I <http://www.urbanisme.gov.pf/spip.php?rubrique126>

63 In Book II (Pollution, hazard and harm prevention) Title 3 (Evaluation of the impact of environmental protection works, activities and projects).

64 <http://www.environnement.pf/spip.php?rubrique6>

#### 4.4 ENVIRONMENTAL AWARENESS

Environmental awareness (terrestrial and marine environments) is effected at different levels on the territory by institutions and associations. DIREN takes action globally on the whole of the territory. Several associations foster awareness through actions on a local scale, on several archipelagos, both at the scale of a whole island, for example, Tuihana for Tiare Apetahi on Raiatea, and the scale of a valley, such as the Haururu association for the Papenoo valley or the numerous environmental protection associations of the Punaruu valley. The creation of awareness for the protection of the marine environment is led by several associations, such as the Tamari Pointe des Pêcheurs association, Mata Tohora, Te Mana o Te Moana, among others, working to foster awareness of marine ecosystems, marine mammals, turtles, etc.

SOP-Manu<sup>65</sup> is actively involved in biosecurity matters on the Ua Huka, Tahuata and Rimatra islands. It is also present in local media for the protection of the Tahiti and Fatu Hiva monarchs.

The SOP's strategy for the protection of French Polynesia's birds is based on three simple principles:

- The preservation of FP's last islands still void of invasive exotic species (IES) ;
- Continuous control of IES (black rat monitoring on Ua Huka and Rimatara) ;
- The eradication of IES on those islands where it is possible.

Control of IES on the islands of Tahiti and the Marquesas were the subject of an episode of the French TV show '*Des racines et des ailes*', broadcast in February of 2014 (France 3).<sup>66</sup>

FP University and the Louis Malardé Institute have developed skills in the health and environmental sectors and their findings are publicly accessible.

French Polynesia supports the pilot program creating educational marine areas<sup>67</sup> in the Marquesas meant to offer a certification process involving scholars in the management of marine spaces. In schools, a program on the environment and birds has been set up.

Several scientific campaigns involve the population (REMMOA, PAKAIHI I TE MOANA and PALIMMA).

Ship crews going to the Rimatra and Ua Huka islands receive biosecurity training.

#### 4.5 ENVIRONMENTAL FINANCES

There is a *taxe pour l'environnement, la pêche et l'agriculture* (TEAP; environmental, fishing and agricultural tax) and a *taxe pour l'enlèvement et le recyclage des véhicules* (TERV; tax on the removal and recycling of vehicles). The main drinks bottler on Tahiti has a consignment system for some of his products.

There is no territorial fund dedicated to the environment, biodiversity, climate change or any similar tool. The SNB (National Biodiversity Strategy) sometimes launches calls for tenders open to associations and NGOs. The BEST Preparatory action is available.<sup>68</sup>

The Vahanga and Tenarunga islands restoration project, as well as that of three Gambier islets, represents 641 million CFP francs, coming from the European Union (ENRTP fund), the David and Lucile Packard Foundation, Birdlife International, Bell Laboratories and Island Conservation. The eradication of invasive species on this island is slated for April-May 2015. About 15 million CFP francs need to be found to carry it out under proper conditions.

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65 <http://www.manu.pf/>, associée à Birdlife International.

66 <http://www.france3.fr/emissions/des-racines-et-des-ailes>

67 The Marquesas' PUKATAI educational marine areas program led by Motuhaka, the Vaitahu school, the marine protected areas agency, with the help of French Polynesia, CODIM and IFRECOR

68 "BEST" - Voluntary scheme for Biodiversity and Ecosystem Services in Territories of European overseas.  
[http://ec.europa.eu/environment/funding/intro\\_en.htm](http://ec.europa.eu/environment/funding/intro_en.htm)

## 5.1 COOPERATION WITH FRANCE

The multi-annual contract spanning 2008-2013 provides a total investment of 435 million euros, to which the French state and French Polynesia will contribute an equal sum of 177 million euros. The balance is managed by the PHO (Public Housing Office) for social housing and the FIP (*Fonds Intercommunal de Péréquation*; Inter-commune Equalization Fund) for environmental files. The five priorities are: social housing, health, survival shelters, higher education and research and the environment (with the development of major infrastructure for water treatment, drinking water supply and waste processing (138 million €).<sup>69</sup> By late January 2014, only 20.3% of the budget had been used.<sup>70</sup> The Projects Contract funds the *Waste* projects of the Tikehau atolls (Rangiroa commune) and of Fakahina (Fangatau commune)<sup>71</sup>.

The *Agence Française de Développement* (AFD; French Development Agency) employs 14 people in French Polynesia. The financial activity of the AFD group in Polynesia benefits public authorities (French Polynesia, the communes, public institutions and semi-public companies), the banking sector and private companies. In parallel to its traditional funding role, the AFD offers its partners its technical expertise and know-how. In 2012, 83.26 million euros were given in loans.<sup>72</sup>

France funds environmental projects and studies devised by delegations of French institutes (like the Statistical Office, ADEME, the Marine Protected Areas Agency, etc.) For example, during the collaboration with the Marine Protected Areas Agency (mentioned in 4.1.) in 2013-2014, three novel Marine Protected Area projects will be created. The first will allow for the creation of Marine Protected Areas in the Mahina commune. The second, the first archipelago-scale Marine Protected Area pilot project to be created by French Polynesia covers the whole of the Marquesas archipelago. The last project is the creation of an "Educational Marine Area" certification and network. This initiative is also meant to foster awareness in children of the management of the marine environment.<sup>73</sup>

The SOP-Manu association<sup>74</sup> is implementing the "Multi-species control and socio-educational approaches to the involvement of populations for the protection of the Tahiti and Fatu Hiva monarchs" with funding from the Ministry of ecology, development and energy as part of the SNB (National Biodiversity Strategy) and the battle against invasive exotic terrestrial and marine species in overseas departments and collectivities.

As part of the same SNB initiative, an operation for the preservation of the Temehani plateaus received funding from the state for the 2012-2014 period. Coordinated by the DIREN, this operation is supported locally by the Tuihana association and involves different players to combat invasive species and for the preservation of threatened plant and animal species. Locally the DRRT (Regional Delegation of Research and Technology) has co-funded different operations with the DIREN since 2012: the battle against IES, the preservation of Nuku Hiva's biodiversity, the state of the environment.

### Natural hazards prevention

Three successive programs named ARAI (*Aléas, Risques naturels, Aménagement et Information*; Risks, Natural hazards, Planning and Information) have allowed to define and specify French Polynesia's exposure to natural hazards, and in particular the risk of marine submersion (cyclonic and extreme swell

69 <http://haut-commissariat-polynesie-francaise.pf/ez/index.php/fre/Media/Images/Le-Haut-Commissariat/Fiche-presentation-Contrat-de-projets>

70 <http://www.lesnouvelles.pf/article/ca-fait-la-une/contrat-de-projets-2008-2013-seulement-203-realises>

71 <http://www.polynesie-francaise.pf/les-subdivisions2/des-iles-Tuamotu-Gambier/Environnement-et-developpement-durable/Gestion-des-dechets>

72 <http://www.polynesie-francaise.pf/les-services-de-l-etat/finances/afd>

73 <http://web.presidence.pf/index.php/cm/605-communique-du-conseil-des-ministres-du-11-octobre-2013>

74 <http://www.manu.pf/>

risks, tsunami risk), ground movement risk and the risk of inundation from overflowing streams. The first ARAI took place from 2002 to 2006 as part of a tripartite state - French Polynesia - BRGM co-funding agreement<sup>75</sup> of 436 million CFP francs. Afterwards, the ARAI 2 (2008-2010, 109 million CFP francs) and ARAI 3 programs (2010-2013, 65 million CFP francs) were implemented through a French Polynesia - BRGM agreement.

## 5.2 COOPERATION WITH THE EU

### **Joint wastewater treatment**

The European Union has participated in the joint sewage water treatment programs in FP since 1997, and has funded approximately 40 million euros out of a total of 70 million. Three important projects were successfully implemented in this sector in the Punaauia, Bora-Bora and Moorea communes. These exemplary implementations are technical and socio-economic successes that should serve as models for other Pacific countries.<sup>76</sup> It should be noted that the European 'Blue Flag' eco-label has been awarded to the Bora-Bora commune for the past 7 years and to Punaauia's Taina marina for the past 2 years.

In the programming document of the 10<sup>th</sup> EDF (European Development Fund) for the 2008-2013 period, French Polynesia requested the allocation of 18.33 million euros for Papeete's wastewater treatment.<sup>77</sup> In November of 2013 an agreement was signed for this project.<sup>78</sup> The program is now entering its implementation phase with the launch of calls for tenders.<sup>79</sup> This project will answer the needs created by a growing population and activities tied to the economic and touristic development of the city centre.

### **Water**

A committee in charge of overseeing the realization of a sectoral water policy was created in May of 2010.<sup>80</sup> A request for "Support for the conception and drafting of French Polynesia's sectoral water policy" was published in late 2013.<sup>81</sup>

### **Natural hazards prevention**

The European Union provided a special aid package of 2 million € (240 million CFP francs), during the 9th EDF, in order to help French Polynesia address the risk of marine submersion. With the help of the SPC / SOPAC, the "Support for the prevention of catastrophe risks in the Pacific OCTs" project was able to contribute to the reduction of cyclonic swell risks in the Tuamotu archipelago, and to increasing the reliability of the tsunami alert network of the Marquesas archipelago.

### **Energy**

As part of the TEP VERTES project, five Tuamotu islands communes favoured the development of hybrid power stations. For a number of years, the Tuamotu-Gambier archipelagos used thermal power, produced by diesel fuel combustion, delivered from Tahiti on schooners, to supply homes with electricity.<sup>82</sup>

### **Biodiversity preservation**

The SOP-Manu association is putting in place a project funded by the European Union (BEST Preparatory action) for the preservation and sustainable management of French Polynesia's threatened land birds and

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75 Program of the Bureau de Recherches Géologiques et Minières, the national French geological service

76 <http://web.presidence.pf/index.php/pr-presidence/682-assainissement-de-papeete-signature-d-une-convention-avec-l-union-europeenne>

77 [http://ec.europa.eu/europeaid/where/octs\\_and\\_greenland/documents/french\\_polynesia\\_docup\\_signed.pdf](http://ec.europa.eu/europeaid/where/octs_and_greenland/documents/french_polynesia_docup_signed.pdf)

78 <http://web.presidence.pf/index.php/pr-presidence/682-assainissement-de-papeete-signature-d-une-convention-avec-l-union-europeenne>

79 <http://web.presidence.pf/index.php/mrm-filtre/734-fed-pour-la-polynesie-francaise-3-6-milliards-fcfp-sur-la-periode-2014-2020>

80 <http://www.environnement.pf/IMG/pdf/lexpol-2.pdf> et <http://www.environnement.pf/spip.php?article103>

81 [EuropeAid/135032/IH/SER/PF](http://EuropeAid/135032/IH/SER/PF)

82 <http://www.polynesie-francaise.pref.gouv.fr/Les-Subdivisions2/des-iles-Tuamotu-Gambier/Environnement-et-developpement-durable/Les-centrales-hybrides>

their habitats.<sup>83</sup> BirdLife International has proposed the "Island Ecosystems, Local Livelihoods - Combating Invasive Alien Species in the Pacific for the benefit of biodiversity and people" project in which SOP is French Polynesia's partner; the proposal has been selected for funding by the European Union as part of the "Thematic Programme for Environment and sustainable management of natural resources, including energy".

Two other projects financed by the BEST Preparatory action are also being implemented in Polynesia: "Coral reefs in a changing world" and PACIOCEA.

For the 11<sup>th</sup> EDF, for the 2014-2020 period, French Polynesia will receive 3.6 billion CFP francs, in contrast with 2.4 billion CFP francs for previous periods.<sup>84</sup>

### 5.3 OTHER INTERNATIONAL/ REGIONAL COOPERATION

French Polynesia is a member of two regional organizations bringing together ACP countries and the Pacific territories, as well as France, the USA, the UK, Australia and New Zealand;

#### **SPC (Secretariat of the Pacific Community).**

The SPC is responsible for the implementation of the INTEGRE regional project, which represents a sum of 12 million euros funded by the EDF for an expected timeframe of 4 years.<sup>85</sup> Its goal is to promote and strengthen, at the regional level, the integrated management of coastal island environments and thereby to contribute to the lasting valorisation of the natural resources of the Overseas Countries and Territories (OCT) of the Pacific, in the interest of the populations. Under French Polynesia's supervision, the program is implemented on pilot sites representative of the region's ecological and socio-economic diversity. In November of 2013, the steering committee met in Papeete and validated the nine pilot sites chosen by the OCTs: three in New Caledonia, three in French Polynesia (Raiatea – Tahaa, Moorea - Opunohu, Tahiti Iti), one in Pitcairn and two in Wallis and Futuna.

#### **PROE (Pacific Regional Environment Programme)<sup>86</sup>**

PROE is involved in the regional plan for nature conservation, waste and climate change. During this program's last meeting in Noumea, a regional Oceanian plan on marine species (2013-2017) was adopted. It includes an action plan for whales and dolphins as well as for dugongs and turtles. Also, an action plan for shark conservation was drafted, involving in particular regional and international fishing commissions<sup>87</sup>.

With the help of PROE's "combat invasive species" program, the *Groupement Espèce Envahissante* (GEE; Invasive Species Group), mandated by the department of the environment (DIREN), organized a workshop in late 2013 on invasive species inter-island transport. About fifty participants were brought together, including island representatives (city halls, associations, department of agriculture), French Polynesian administration (customs, fishing, research, tourism...) and the transport sector (Tahiti airport, air Tahiti, the archipelagos' ship-owners).

This workshop had several objectives:

1. Overview of existing regulations for the transport of goods and plant and animal species considering the challenges in their enforcement and to propose improvements for the protection of the islands from the species;
2. To organize the implementation of a network of persons able to act on the islands on the matter of

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<sup>83</sup> "BEST" – Voluntary scheme for Biodiversity and Ecosystem Services in Territories of European overseas

<sup>84</sup> <http://www.lesnouvelles.pf/actu/des-credits-europeens-en-hausse-pour-la-polynesie-francaise-36-milliards-fcfp-pour-2014-2020>

<sup>85</sup> <http://web.presidence.pf/index.php/pr-presidence/547-reunion-du-comite-de-pilotage-du-programme-integre>

<sup>86</sup> Or SPREP (Secretariat of the Pacific Regional Environment Programme) in english: <https://www.sprep.org/about-us>

<sup>87</sup> <http://www.observatoire-gops.org/fr/session-star-2012-cps-sopac-division;jsessionid=E98C503B5CBD0D0A31246322E757100C> and see <http://www.environnement.pf/spip.php?article193>

invasive species. Thanks to training programs, volunteer members will become real players in the protection of their island. They will be trained to recognize invasive species for early detection and will know the basics of invasive species management. They will also be their island's focal point on good practice to avoid species propagation.

The department of the environment's monitoring unit will centralize alerts and will also be the hub of operations implemented for the islands' protection.

At the end of these 3 days, it became clear that a large number of the island representatives were already sensitized to the invasive species problem. 'Iconic' invasive species, such as the miconia and the electric ant allowed, due to the magnitude of the damage already inflicted on affected islands, to raise public awareness of the necessity to prevent their spreading. Invasive species propagation is not inevitable. This phenomenon can be substantially slowed down through public awareness campaigns, communication with business sectors and training of persons wishing to involve themselves in their island's protection.

**The PACIOCEA project** (Pacific Ocean Ecosystem Analysis) – a new European maritime programme for the South Pacific, led by the French Agency of Marine Protected Areas and the SPREP. The objective is to analyse and consider together the environmental, socio-economic and cultural challenges in order to improve the large scale management of the marine environment. It specifically aims at identifying and establishing sustainable management of the resources for the local population strongly dependent of the marine environment.

## 6 CONCLUSIONS AND RECOMMENDATIONS

The strain put on the environment and its causes are well analysed and described by DIREN.<sup>88</sup>

The wastewater treatment programs in several communes received support from France and the EU and a programme is starting for Papeete. French Polynesia is also moving forward in the development of a water policy framework (drinking water, sewage water, rainwater management, recreational waters and economic uses of water, natural water resources in streams and groundwater). French Polynesia is active in the Pacific region.

French Polynesia has established a long list of priorities based on the DAO's articles relating to the environment. Among these we find the development of sustainable fishing (+processing industry), the development of sustainable aquaculture (including R&D), the development of sustainable pearl farming (including R&D) the development of sustainable agriculture, the development of sustainable tourism (security and management of hiking trails, laying of marine anchors and management of ecological mooring...), the zoning of activities related to marine resources and coastal development and management of the coastline.

It is recommended that current efforts be made permanent, such as those implemented by the INTEGRE and RESCCUE programs (raising interest in integrated management for each branch, in order to secure high-revenue activities, such as pearl farming or tourism, in the long term, by promoting good practices (recycling, consignment...) and by setting up waste collection programmes to avoid pollution in lagoons).

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<sup>88</sup> <http://www.environnement.pf/spip.php?rubrique94>

| Goal   | Action   | Current situation   | Priority and timeframe | Responsible bodies  | € and HR needs | Risks and Assumptions | Possible funding sources |
|--|--|---|------------------------|---|----------------|-----------------------|--------------------------|
| Sustainable management, biodiversity preservation, eco-systemic services | <ul style="list-style-type: none"> <li>- Creation of new protected areas for forests</li> <li>- Reinforcement of existing MPA management (Moorea PGEM, marine mammal sanctuary)</li> <li>- Combating invasive species</li> <li>- Valorisation of eco-systemic services</li> <li>- Establishment of an environmental observatory</li> </ul>   | <p>Six of FP's nine protected areas correspond to uninhabited islands. There are only two nature parks and reserves in all of the inhabited islands. The Fakarava atolls were named "biosphere reserve" by UNESCO's MAB (Man and Biosphere) program</p> <p>Moorea is a wetland of international importance (Ramsar Convention)</p> <p>FP has a marine mammal sanctuary covering the whole of the waters under its jurisdiction.</p> |                        | <p>MTE minister (tourism, ecology, etc.)<sup>1</sup></p> <p>Environmental Department (DIREN)</p> <p>Ministry of Marine Resources (MRM), fisheries, aquaculture and pearl farming</p> <p>French Agency of marine protected areas</p> <p>Civil society (for threatened marine species)</p> <p>Ministry of Agriculture and Rural Development Service</p> |                |                       |                          |
|  | <p><b>Activities</b></p> <ul style="list-style-type: none"> <li>- Promoting awareness of terrestrial protected areas and of their management: personnel training for the different technical services on the islands and for local communities (including associations), but also student instruction and training of academics.<sup>2</sup></li> <li>- Improving coordination between different technical services and their supervising ministry is necessary to develop the <i>Plans généraux d'aménagement</i> (General spatial planning, equivalent to the <i>Plans d'occupation des sols</i> on the continent) where zoning is often done without any real data on the whereabouts of threatened and protected species or vegetation cartography.</li> <li>- Creating a very large protected marine area in the Marquesas, paired to the archipelago's registration process to the UNESCO list of world heritage sites.</li> </ul> |   |                        |   |                |                       |                          |

<sup>1</sup> [http://web.presidence.pf/files/Gouvernement\\_de\\_la\\_Polynsie\\_franaise\\_-\\_18\\_Novembre\\_2013.pdf](http://web.presidence.pf/files/Gouvernement_de_la_Polynsie_franaise_-_18_Novembre_2013.pdf) and <http://www.environnement.pf/spip.php?rubrique128>

<sup>2</sup> [http://bft.cirad.fr/cd/BFT\\_291\\_25-40.pdf](http://bft.cirad.fr/cd/BFT_291_25-40.pdf)

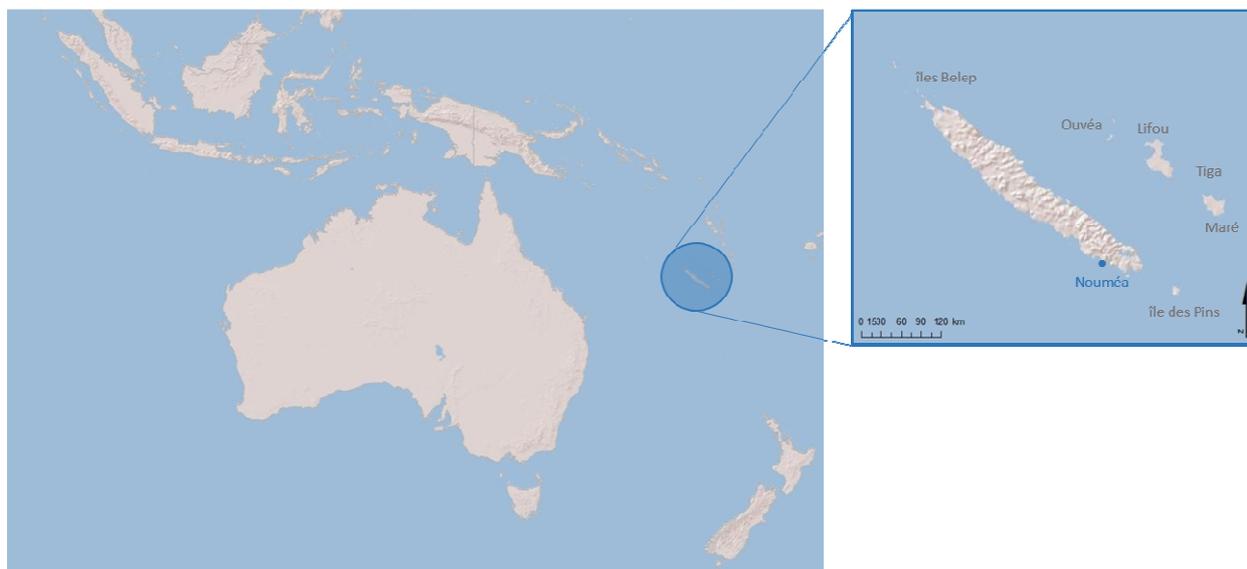
| Goal             | Action   | Current situation  | Priority and timeframe | Responsible bodies                        | € and HR needs | Risks and Assumptions | Possible funding sources |
|------------------|--|--|------------------------|---|----------------|-----------------------|--------------------------|
| Waste management | Waste management modernization   | Waste disposal is problematic<br>Waste production can reach up to 470kg per resident per year. |                        | Environmental Department (DIREN)<br>ADEME |                |                       |                          |
|                  | <b>Activities</b> <ul style="list-style-type: none"> <li>- Organise a structured business dialog with the stakeholders (public, private, civil society) and decision makers in order to fix realistic plans (ready to be implemented) on different waste streams in order to achieve valorisation of waste, and to manage more efficiently some sorts of hazardous waste.</li> <li>- Collect experiences from different small island countries on solutions to waste management.</li> <li>- Définition d'une politique sectorielle des déchets, namely promoting bio-méthanisation et compostage;</li> <li>- Implement best practices for local waste streams. Establish what waste can be valued locally and which has to be exported. Establish economic and finance incentives and/or taxes to reduce the production of waste.</li> <li>- A special focus should be considered on the management and recycling of waste from aquaculture and pearl farming.</li> <li>- Promote public training, education and community-based action, where appropriate, as integral elements of waste management. Develop communication and outreach tools and methodologies to better convey the importance and value of waste separation and recycling.</li> <li>- Enhance efforts to clean-up legacy contaminated sites and include contaminant reduction and reclamation plans in development projects.</li> <li>- Reduce the impact of water tourism; Study the pros and cons (environmental and economic viability) of encouraging and facilitating the landing of specific types of waste. Set requirements for vessels and tourist behaviour.</li> </ul> |  |                        |   |                |                       |                          |

| Goal  | Action  | Current situation   | Priority and timeframe | Responsible bodies  | € and HR needs | Risks and Assumptions | Possible funding sources |
|---|---|---|------------------------|---|----------------|-----------------------|--------------------------|
| Adaptation and mitigation of climate change | Increasing renewable energy use   | The Napuka, Fakahina and Ahe atolls benefited from European and Territorial funding to develop hybrid power stations. The Reao, Fangatau and Tatakoto atoll power stations were funded by the state (75% EIF) and France. These installations allow for 50 to 90% autonomy. |                        | MTE minister (tourism, ecology, etc.)<br>DIREN<br>ADEME<br>Climate Change Network<br>FP's president in charge of energy |                |                       |                          |
|   | <b>Activities</b> <ul style="list-style-type: none"> <li>- Lead studies on the impact of climate change in FP, including coral reefs and the intensity and frequency of extreme weather events.</li> <li>- Engage several public and private stakeholders in reforming the electric sector. Develop among others hydro-electricity and solar energy development.</li> </ul> |   |                        |   |                |                       |                          |

ANNEX B :  
NEW CALEDONIA

# ENVIRONMENTAL PROFILE

## NEW CALEDONIA



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## SUMMARY

New Caledonia (NC) is the third largest island of the southern Pacific and the 4<sup>th</sup> largest economic power in the region.<sup>1</sup> It hosts the largest number of endemic species in the Pacific, the largest lagoon in the world, the second longest barrier reef as well as primary tropical forests. It is the third global nickel producer; the ore is extracted from open-pit mines.

The main environmental problems and challenges in NC are the threats to a rich and unique biodiversity (forest fires, poorly controlled urban and economic development, invasive species, habitat destruction, mines), river and lagoon pollution and sedimentation and climate change. Initiatives have recently been carried out to reduce pollution and sedimentation in rivers and the lagoon. The coral ecosystems are also exposed to the effects of climate change. The increase in frequency of extreme meteorological events will have negative or even devastating consequences.

Numerous sustainable development initiatives have been launched by the government and the 3 provinces, which are competent in environmental matters. The government has adopted, among others, an ambitious urban development plan for New Caledonia until 2025.<sup>2</sup> Among other initiatives, are the creation of an Advisory Committee on the Environment (ACE) in 2006, the creation of a *Conservatoire des Espaces Naturels* (CEN; Conservatory for Natural Environments) in 2011 and the implementation of measures on waste management and on marine environment protection and management.

NC is involved in regional organizations such as the SPREP (Secretariat of the Pacific Regional Environment Program) or the SPC (Secretariat of the Pacific Community).

## 1 BACKGROUND INFORMATION

|                          |   |
|--------------------------|---|
| <b>Territory name</b>    | New Caledonia   |
| <b>Region</b>            | South Pacific   |
| <b>Area</b>              | 18 575 km <sup>2</sup>  |
| <b>Maritime claims</b>   | EEZ : 1 422 543 km <sup>2</sup><br>Continental shelf : 46 000 km <sup>2</sup> |
| <b>Population</b>        | 256 000 (2012), i.e. 13,8 inhab./km <sup>2</sup>                              |
| <b>GDP per capita</b>    | 3,3 million F CFP <sup>3</sup> (2011)   |
| <b>Literacy rate</b>     | 94% of the population (14 and older)<br>CIA : 96% for 15 and older            |
| <b>Unemployment rate</b> | 14% (2009 estimation) (ISEE)  |

Located in the South Pacific, 1500 km east of Australia, New Caledonia is part of Melanesia. New Caledonia is the third biggest island of the South Pacific (after New Zealand and Papua-New Guinea), it has the largest lagoon and second longest barrier reef in the world. New Caledonia's lagoons are spread over a total surface area of 40 000 km<sup>2</sup>.

The largest island (Grande Terre) has a surface area of 16 890 km<sup>2</sup> and consists of coastal plains and mountains. To the south, there are small isolated islands, including the Isle of Pines. The Belep archipelago and two atolls, Huon and Surprise, are located in the northern lagoon. The Loyalty Islands archipelago, east of the main island, comprises three "flat" coral islands (Ouvéa, Lifou and Maré), some smaller islands and two reefs to the north.

1 After New Zealand, Australia and Hawai'i.

2 Action plan on New Caledonian biodiversity (2006), Report (June 2013) for the Third International Conference of Small Island Developing States and especially the Planning and development model of New Caledonia for 2025 (November 2013).

3 Or an estimated 27 650€. Data from the National Institute of Statistics and Economic Studies

The climate is tropical, warm and humid, with south-eastern trade winds (dominant winds)

## Population

The average density is of 13.8 inhabitants per km<sup>2</sup>, but it reaches 2 000 inhab/km<sup>2</sup> in Nouméa, the capital. Almost all New Caledonia residents live on the coast. The southern province is the most populous with 75% of the territory's population,<sup>4</sup> most of whom live in Nouméa. Nearly half of the population is Melanesian, 34% is European and there are also residents with origins in Wallis and Futuna and other communities (Asian in particular, but also Polynesian, for example).

## Economy

The economy is largely dominated by nickel mining and commercialization. The community is often ranked as the third producer worldwide. Processed locally or exported to industrialized countries, nickel (ore and metallurgy) represents 90% of New Caledonia exports.

Apart from nickel, the remaining industry agents of New Caledonia are essentially small and medium-sized companies. These businesses' activities are essentially focused on the construction, agro business and food processing and industrial goods competing with imports. Most of these small and medium-sized businesses are in Nouméa or nearby. The retail sector, active and diversified, is characterized in particular by a strong network of large retail outlets.

Agriculture holds a traditional and central role in New Caledonian society, with subsistence farming in tribes and large scale farming on the west coast (cows, deer and poultry essentially).

There are three kinds of fishing in New Caledonia, lagoon fishing, coastal fishing and deep-sea fishing. Longliner yields in 2012 reached 2700 tons.<sup>5</sup>

Aquaculture, which mostly yields shrimp, is receiving growing attention in New Caledonia. The tropical shrimp sector has imposed itself as the community's second export activity.

New Caledonia's natural assets make it a popular destination. The tourism sector has today become a promising development focus (110 000 tourists arrived by plane in 2012 (ISEE) and 211 000 (in 2011) by cruise ship).

## 2 BIOGEOGRAPHY, ENDEMISM AND IMPORTANCE FOR GLOBAL BIODIVERSITY

New Caledonia is internationally recognized as a global biological diversity hotspot. It has a large diversity of terrestrial and marine natural environments, all the more important due to the levels of terrestrial fauna and flora endemism, which is particularly high (75% on average). This high rate of endemism can be explained by the island's isolation, but also by the presence of ultramafic<sup>6</sup> rocks and the tropical climate.

There are different terrestrial ecosystems: dense rainforest, dry forest, brushlands on former mining sites, savanna and marsh wetlands. The marine ecosystems are made of open-sea areas as well as coral reefs and lagoons. The mangrove is considered as a transitional ecosystem.<sup>7</sup>

The International Union for the Conservation of Nature (IUCN) describes the importance of New Caledonia's biodiversity thusly:<sup>8</sup>

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4 Loyalty Islands Province 7%, Northern Province 18%. ISSE 2009.

5 <http://www.affmar.gouv.nc/portal/page/portal/affmar/librairie/fichiers/22252006.PDF>

6 Wulff, A.S., 2013, Conservation Priorities in a Biodiversity Hotspot: Analysis of Narrow Endemic Plant Species in New Caledonia, DOI: 10.1371/journal.pone.0073371

7 [http://www.biodiversite.nc/Introduction\\_r66.html](http://www.biodiversite.nc/Introduction_r66.html)

8 IUCN Biodiversité d'Outre-mer (2013) Biodiversité terrestre pp. 261-265, Biodiversité marine et côtière pp. 272-275

| Terrestrial biodiversity               |   |  |   |   |             |
|--|---|--|---|---|-------------|
| Flora                                  |   | Invertebrates  |   |   |             |
| Mosses and liverworts                  | Vascular plants                                     | Molluscs   | Arachnids   | Insects   | Crustaceans |
| >1000 of which approx. 1/3 are endemic | 3371 (2518 endemic)                                 | 205 identified, 400-500 estimated (nearly 100% endemism) | >450 taxa; 8 endemic genera out of 112                  | >4500 identified taxa (estimated total: 8000-20000); strong endemism      | 106 species |
| Vertebrates                            |   |  |   |   |             |
| Fish                                   | Amphibians  | Reptiles   | Birds   | Mammals   |             |
| 103 (11 endemic)                       | No known indigenous species; one introduced species | 95 of which 84 are endemic                               | 115 nesting species (21 endemic) + 85 migratory species | 9 native species (chiroptera) of which 6 are endemic + introduced species |             |

| Marine and coastal biodiversity    |   |       |  |             |
|------------------------------------|---|-------|--|-------------|
| Flora                              | Invertebrates                                 |       |  |             |
|                                    | Cnidarians                                    | Worms | Molluscs                               | Crustaceans |
| 11 spermatophytes + 443 macroalgae | 787   | 286   | 3392 identified; 30000-40000 estimated | 2500        |
| Vertebrates                        |   |       |  |             |
| Fish                               | Reptiles                                      |       | Birds                                  | Mammals     |
| 2500 (of which 1700 reef fish)     | 4 sea turtles; over 16 sea snakes (2 endemic) |       | 25 nesting species                     | 26          |

The number of protected species reaches 565 in the northern province (2008 data) and 402 in the southern province (2010 data). The number of identified invasive species is 521 in the Northern Province (2012) and 127 in the Southern Province (2009).

For the northern and southern provinces, protected terrestrial areas make up more than 90 000 ha and the protected marine areas spread over more than 420 000 ha. This data does not include the Loyalty Islands province, which is designated as a wilderness reserve.<sup>9</sup> Some of the reefs and the lagoon have been designated as UNESCO world heritage sites in July of 2008. A new marine protected area, the Coral Sea nature park, was created in April 2014, covering nearly 1.3 million km<sup>2</sup>. The marine protected area (MPA), under its shared responsibility with the French Government, encompasses the whole EEZ, as well as the territorial waters and the islands under New Caledonia management. The park is now amongst the largest MPAs in the world. Its creation increases significantly the surface of French MPAs –16 % of waters under French jurisdiction are now under an MPAs status (4% before this Coral Sea natural park).

<sup>9</sup> <http://www.isee.nc/tec/atlas/telechargements/1-territoire-environnement.pdf>

#### 3.1 OVERVIEW OF THE STATE OF NEW CALEDONIA'S ENVIRONMENT

There are potential risks of environmental degradation specific to large urban areas in Nouméa (industrial and urban activities and waste discharge, increasing use of peripheral natural environments...). In 2012, nearly 83 000 tons of waste were collected from households in greater Noumea (garbage and bulky household waste, green waste).<sup>10</sup> Non-hazardous waste production by businesses in NC exceeds 121 000 tons and more than 6 000 tons of recyclable waste was collected and recovered.<sup>11</sup>

By late 2013, Nouméa had six wastewater treatment plants with a total capacity of 67 200 population equivalent (PE) for an estimated required capacity of 127000 PE<sup>12</sup>. As such, although 90% of the population has a collection system, the processing rate does not exceed 30%.

Outside of greater Nouméa and although demographic pressure remains low (approximately 5 inhab./km<sup>2</sup>), threats related to economic activity (mining) and to wildfires are a burden on these fragile environments. The impact of wildfires represents 5515 ha, 8870 ha and 685 ha of burned land in 2010, 2011 and 2012 respectively according to the ISEE.

The IEOM shows in its 2012 annual report that fossil fuel consumption is set at 820 thousand TOE.<sup>13</sup> Fossil fuel consumption dedicated to electricity production is nearly 44% of the total. Consumption linked to the transport sector represents 25% and that linked to the industrial sector represents 22%. The share of renewable energy in production is 20%. A "renewable energy promotion plan" begun in 2012 by the government provides, among other things, for a revaluation of kilowatt/hour purchase prices and the development of new renewable energy power plants.

Existing data on the potential or observed impacts of climate change in NC is limited. Nevertheless, the major impact which has been observed is the degradation of coral reefs.<sup>14</sup>

Threats to the environment which have been ascertained by the government in consultation with several public institutions and civil society players in the NC's planning and development scheme for 2025 include:

- "wildfires, which destroy nearly 10 000 hectares of vegetation each year, as well as the introduction and proliferation of invasive species, which upset the natural ecological balance and encroach ever more on natural environments;
- growing household and equivalent waste production, in the range of 250 000 ton per year today, including over 20 000 tons of hazardous waste and 200 unauthorized dumps to rehabilitate;
- a significant lag in wastewater treatment in greater Nouméa with nearly 60% of Nouméa's domestic wastewater effluents ending up in the lagoon without appropriate treatment;
- a constantly growing strain on water resources, combined with salt water intrusions;
- the destruction of habitats due to lack of knowledge conducive to the presence of micro-endemisms;
- the exploitation of mineral or natural resources."

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10 IEOM 2012 report, page 94. <http://www.ieom.fr/nouvelle-caledonie/publications/rapports-annuels-70/2012-1330.html>

11 <http://www.isee.nc/tec/atlas/telechargements/1-territoire-environnement.pdf>

12 <http://www.noumea.nc/vivre-noumea/eau-et-assainissement/six-stations-depuration>

13 <http://www.ieom.fr/nouvelle-caledonie/publications/rapports-annuels-70/2012-1330.html>

14 <http://windvane.univ-nc.nc/~ifrecor/synthese/biblio-ifrecor/pacifique/caledonie.pdf>

### Challenge 1 - Threat to a rich and unique biodiversity - Severe

The strain exerted on New Caledonia's biodiversity includes mining, deforestation, habitat destruction, bushfires, hunting and harvesting and rare wild species trafficking.

The wealth of wild fauna and flora includes a large number of endemic species, a number of which are threatened. For example, of the 115 bird species identified in New Caledonia, over 20 are endemic and 7 of these are listed by the IUCN as being threatened. NC's emblem, the kagu<sup>15</sup> is under serious threat due to deforestation and wild dogs. The largest wood pigeon in the world, the New Caledonian imperial pigeon<sup>16</sup> and the cloven-feathered dove<sup>17</sup> are also among the threatened species.

International trafficking threatens rare bird and marine animal species, such as the Ouvea parakeet<sup>18</sup>, the horned parakeet<sup>19</sup> and an endemic cephalopod, the nautilus, a "living fossil"<sup>20</sup>.

Bushfires are also an important erosion factor. They have many causes: traditional agriculture, combating invasive species, hunting and land disputes.

A study on the economic value of the services rendered by coral ecosystems shows that fishing and tourism linked to New Caledonia's lagoons bring in up to 100 million euros to the territory's GDP, but if all services are taken into account (coastal protection, fishing, tourism, bio-prospecting, research and education), the number comes nearer to 320 million euros per year.<sup>21</sup>

### Challenge 2 - Pollution and sedimentation of the rivers and lagoon - Severe

In 2013, open-pit mining produced 150 000 T of nickel content within 11 000 kT of crude ore.<sup>22</sup> It is recognized that for on ton of extracted ore, at least 5 times as much waste is mobilized<sup>23</sup>, which in 2013 corresponds to 20 million m<sup>3</sup> of mineral waste.

This mining activity which is over 100 years old has gravely affected New Caledonia's rivers and ecology, bringing about considerable impacts on drainage basins, floodplains, riverbeds, deltas, coastal zones and lagoons (coral asphyxiation).

Until recently, no particular precautions were taken and the rocky mineral waste was simply pushed onto the ranges' slopes. Erosion caused by water runoff on loosened land leads to considerable damages: waste dragged into river valleys which they fill, negative effects on aquatic fauna and flora, damage to marine flora and fauna through the accumulation of a surplus of fine particulates, especially during periods of heavy rainfall. The long-term negative impact of this pollution, evident in the case of coral, are however still poorly understood.

Still today, the mineral waste of abandoned mines is often subjected to erosion, except for those going through revegetation efforts, in particular thanks to the SYSMIN instrument (System of Stabilization of Export Earnings from Mining Products). In mines where production conforms to the new mining code, waste is stocked in order to reduce the negative environmental effects: it is arranged into compacted layers, in dumps, which limits the risk of erosion and reduces the impact in water resources. Since 1989, Deliberation 104 requires, among others, industries to fund communes' revegetation operations.<sup>24</sup>

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15 *Rhynochetos jubatus*

16 *Ducula goliath*

17 *Ptilope vlouvlou* or *Drepanoptila holosericea*

18 *Eunymphicus uvaensis*

19 *Eunymphicus cornutus*

20 *Nautilus macromphalus*

21 By Nicolas Pascal for IFRECOR. [http://www.ircp.pf/wp-content/uploads/Plaqueette-Ifrecor\\_ValoEco\\_Nouvelle-Caledonie\\_WEB-EUR.pdf](http://www.ircp.pf/wp-content/uploads/Plaqueette-Ifrecor_ValoEco_Nouvelle-Caledonie_WEB-EUR.pdf)

22 <http://www.dimenc.gouv.nc/portal/page/portal/dimenc/librairie/fichiers/25670172.PDF>

23 [http://horizon.documentation.ird.fr/exl-doc/pleins\\_textes/pleins\\_textes\\_5/b\\_fdi\\_31-32/34105.pdf](http://horizon.documentation.ird.fr/exl-doc/pleins_textes/pleins_textes_5/b_fdi_31-32/34105.pdf)

24 <http://www.dimenc.gouv.nc/portal/page/portal/dimenc/librairie/fichiers/13074357.PDF>

The effluents generated by the Vale NC nickel mining company's processing plants are discharged off the coast through a pipeline several km long.

Sedimentation in the lagoon and its impacts have been worsened by cyclones which induced clogging of river mouths by the transport of sediments from the riverbeds, in particular on the eastern coast.

### **Challenge 3 - Climate change - Severe**

Sea level rise, one of the results of global warming, increases coastal erosion. Sea level rise will bring about land losses, infrastructure and housing damage and loss, as well as saline intrusions into aquifers.

Changes in air and water temperatures are expected to have an impact on the ecosystems, mainly in marine ecosystems (mangroves, lagoons, coral reefs). Changes in ocean currents will affect nutrient availability and the distribution of young and larval organisms, thereby influencing population dynamics.

The expected climate change induced increase in cyclone and tropical storm frequency and violence will increase economic damages and deaths in the worse cases. New Caledonia is already affected by cyclones and strong tropical depressions. Two recent examples demonstrate this: Erica (2003, substantial damage, 2 dead<sup>25</sup>) and Vania (2011, significant damages to agricultural land).

## **4 ENVIRONMENTAL GOVERNANCE**

### **4.1 STRUCTURE**

New Caledonia is a French territory since 1853 and was given French overseas territory status in 1956. During the 1980s and 1990s, the movement to acquire greater independence led to the signing of the Nouméa Accord in 1998, which allows for progressive and widened autonomy and sovereignty. New Caledonia became a *sui generis* community within the French Republic. A referendum on auto-determination can take place at a 3/5<sup>ths</sup> majority of congress between 2014 and 2018.

Since the signature of the Nouméa Accord with France and the organic law of 19 March 1999<sup>26</sup> which followed, governmental practices and policy preparation now take place at several levels:

- France is represented by a High Commissioner residing in Nouméa. The French state is responsible for international relations, scientific research and a number of fields related to regional maritime transport (e.g. hazardous materials). The Republic's High Commissioner in New Caledonia is the government's primary interlocutor. The government holds the power in strategic fields such as energy and nickel, EEZ and waterway regulation and management, phytosanitary measures and regional relations.
- New Caledonia's executive is the government, elected by the deliberative assembly, congress. The other institutions are the Economic, Social and Environmental Council and the customary senate. Since 2000, many other political fields are part of the government's jurisdiction, such as external trade, resource management (fossil fuels, nickel) and EEZ management, but also civil defense. New Caledonia can legislate through "lois du Pays".
- The three provinces (Northern Province, Southern Province, and Loyalty Islands Province) each have their own provincial assemblies, which are responsible in particular for the environment

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25 <http://www.meteo.nc/cyclone/cyclones-passes>

26 <http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000393606>

and economic development. The provinces manage publicly-owned waters. They exercise, among others:

- a statutory power (provincial environmental Codes);
  - natural heritage protection and conservation missions (protected areas, marine and terrestrial, species, ecosystems);
  - natural resources management;
  - pollution, risk and hazard prevention;
  - shared jurisdiction in education, health, gender equality, tourism and transport.
- The communal level has largely the same rights and responsibilities as French communes, namely waste management, sewage water treatment and civil defense.
- There are eight customary areas which are distinct and parallel to administrative subdivisions. Each area is represented by a customary council.

## 4.2 INSTITUTIONS

For state services, in the High Commissioner's Office, the *Direction du Service d'Etat de l'Agriculture, de la Forêt et de l'Environnement* (DAFE; Direction of the State Service of Agriculture, Forestry and the Environment) is the primary interlocutor for local environmental players (NGO, Public Interest Groups, management committees, *CNRT* Nickel, ADECAL, ZONECO...). On environmental questions, the DAFE is responsible for the monitoring of international conventions (World Heritage, Bonn, Ramsar) and the expansion of certain national policies and community support (e.g. combating invasive species, biodiversity indicators, sanitation).<sup>27</sup>

There is an *Advisory Committee on the Environment* (ACE), created in 2006 by the New Caledonia congress, which is consulted in different fields: studies, opinions, coordination, information and proposals relative to sustainable development and environmental protection. This Committee must be consulted on major projects. It is made up of 15 permanent members, to which are added competent members, comprising the High Commissioner and the presidents of New Caledonia, the congress, the 3 provinces, the president of the local governors association, and 4 NGO representatives.<sup>28</sup>

New structures were created on the territorial level, for example the *Conservatoire des Espaces Naturels* (CEN; Conservatory of Natural Environments)<sup>29</sup> an environmental public interest group created in 2011 which devotes itself to a coordinated conservation program for dry forests (dry forest centre), to the coordination of the management of the lagoon's 6 sites and associated ecosystems listed in the UNESCO's World Heritage Sites in 2008 (world heritage centre), and the coordination of the battle against invasive species (invasive species centre).

An *Observatoire de l'environnement* (Oeil; Environmental Observatory; association status) was created to evaluate the state of the environment and to monitor its evolution when faced with the growing strain of human industrial and mining activities in the southern province.<sup>30</sup>

Within the New Caledonian government, the *Direction de l'Industrie, des Mines et de l'Energie* (DIMENC; Industry, Mining and Energy Directorate) contributes to the development of sustainable industries in New Caledonia, through its prospective actions in the fields of energy and mining, as well as the control and regulatory oversight of industrial activities susceptible of harming the environment.<sup>31</sup> DIMENC also includes a service in charge of the elaboration and implementation of the energy policy aiming at ensuring the supply of energy to all of New Caledonia.<sup>32</sup> This department is in charge of the drafting and

<sup>27</sup> <http://www.nouvelle-caledonie.gouv.fr/site/L-Etat/Services-de-l-Etat/La-DAFE/La-DAFE>

<sup>28</sup> Data from the Planning and development model of New Caledonia 2025

<sup>29</sup> A Public interest group created in 2011

<sup>30</sup> More information on Oeil's structure and activities available on [www.oeil.nc/](http://www.oeil.nc/)

<sup>31</sup> <http://www.dimenc.gouv.nc/portal/page/portal/dimenc>

<sup>32</sup> <http://www.dimenc.gouv.nc/portal/page/portal/dimenc/energie/presentation>

implementation of the regulatory texts relating to the electrical system, fossil fuels and energy management. In addition, in collaboration with ADEME, the energy service is developing and implementing action programs for energy management and helps to fund energy saving projects or the development of new energy sources, in particular renewable energy. This association exists as part of the *comité territorial pour la maîtrise de l'énergie* (CTME; territorial committee for energy management), created in 1981. In 2008, a *comité permanent de l'énergie* (CPE; permanent energy committee) was created.

The organic law of 19 March 1999 also requires that all folders on nickel, cobalt, chrome and fossil fuels must be submitted to the *Comité Consultatif des Mines* (CCM; Advisory Committee on Mining) for its opinion before being submitted to the *Conseil des Mines* (CM; Mining Council) - new bodies created by the same law.<sup>33</sup>

In New Caledonia's government, the *Service de coopération régionale et des relations extérieures* (SCRRE; regional cooperation and external relations service) is under the immediate authority of the President of the government, and concentrates its activities around four aspects: 1. "Bilateral cooperation". This service conducts and monitors the cooperation actions initiated with Pacific states and territories. 2. "Multilateral cooperation". This service coordinates NC action in the international and regional organizations of which it is a member (SPC<sup>34</sup>, PIF, SPREP ...). 3. "European affairs". This service steers and monitors NC's relations with the European Union as defined by its European Union overseas countries and territories (OCT) status. It monitors in particular the European Development Fund's dedicated NC packages and actively participates to the OCTA's work.<sup>35</sup> 4. "Economic development cooperation". It also puts in place a network of New Caledonia delegates hosted in the region's six French embassies.

Several levels and institutions cooperate in research programs, such as IFRECOR (*Initiative française pour les récifs coralliens*; French initiative for coral reefs) and ZONECO (study of natural, lagoon and marine resources of New Caledonia's exclusive economic zone).

International and local environmental NGOs are active in NC and participate in different awareness and environmental education programs. The majority of them are active in the conservation and biodiversity protection field.<sup>36</sup>

### For the provinces

The following directorates and services are competent in the environmental sector in the provinces:

| Loyalty Islands province   | Southern province  | Northern province   |
|--|--|---|
| The Environmental Service implements the strategic provincial environmental guidelines. This service has 4 sections:                               | The <i>direction de l'Environnement</i> (DENV; Environmental branch) is made of the following services:  | The <i>direction du développement économique et de l'environnement</i> (DDEE; economic and environmental development branch) is composed, among others, of the following services related to the environment:   |
| Quarry management & Integrated and sustainable water resource management; Biodiversity management; Risk prevention and combating pollution; Energy | SCB : <i>service de la conservation de la biodiversité</i> (biodiversity conservation service)<br>SAPA : <i>service des aires protégées aménagées</i> (planned protected areas service)<br>SPPR : <i>service de prévention des pollutions et des risques</i> (pollution and hazard prevention service)<br>Hunting and wild fauna service | Local development division: local development service<br>Environmental and natural resources division: aquatic environments and resources service<br>terrestrial environments and resources service<br>"environmental impact and conservation" service<br>(sustainable development service)<br>Agricultural service |

33 [http://www.dimenc.gouv.nc/portal/page/portal/dimenc/mines\\_carrieres/mines](http://www.dimenc.gouv.nc/portal/page/portal/dimenc/mines_carrieres/mines)

34 <http://www.spc.int/fr/a-propos-de-spc.html>

35 Information given by Ms. Anne-Claire Goarant.

36 [http://www.biodiversite.nc/Milieu-associatif\\_r95.html](http://www.biodiversite.nc/Milieu-associatif_r95.html)

## For the communes

Responsible for solid waste, sewage water, urban affairs and civil defense.

### 4.3 POLICIES, STRATEGIES, PLANS, PROGRAMS

#### Sustainable development

For the territory, among the strategic documents drafted since 2006, the most important is the Planning and development outline of NC for 2025<sup>37</sup> (of 2013) which is meant to meet the demands of article 211 of the organic law: "to offer coherent and balanced development, express fundamental orientations and specify the strategic objectives and corresponding means, create a framework for the elaboration of development contracts."

NC has also developed a Joint SPC<sup>38</sup>-New Caledonia 2012-2016 strategy. It is organized into four axes: human development, economic development, environment, and regional cooperation. Among the subjects addressed are terrestrial resources, fishing and aquaculture, agriculture, health, training, economic development, energy and transportation, water and sanitation.

For the provinces, many initiatives, projects and programs have been launched/ begun/ adopted, some of which have already produced results, for example:

- an inventory of programs and actions which might contribute to sustainable development (Northern Province, 2012);
- a "Sustainable development strategy- 119 commitments in the service of citizens and for a model community"(Southern Province, 2009).

#### Biodiversity

The implementation of the French 2004-2010 biodiversity strategy<sup>39</sup> was accomplished through sectoral action plans<sup>40</sup>. It contains a transversal action plan and ten local action plans, one of which is for New Caledonia. The 2006 action plan on NC's biodiversity<sup>41</sup> synthesizes the 28 measures of the action plans developed by the New Caledonian government and the three Provinces for a total budget of nearly 54 million euros. The listing of different parts of NC's coral reef and associated ecosystems as part of the UNESCO's world heritage sites is one of them. But two other measures should be noted, concerning dry forest conservation and the operational program for the prevention and combating of bushfires, which stand as a reminder of the threat to biodiversity due to constant anthropogenic pressures and the need for sustainable management of these environments.

The monitoring of the 2006 action plan is part of the terms outlined in the document. A report has been produced on the biodiversity actions implemented between 2006 and 2010 in the Southern Province, concerning the five following goals:

- Preserve the territory's good environmental quality;
- Develop an ambitious conservation program for the terrestrial and marine ecosystems;
- Increase knowledge on biodiversity to better manage and preserve it;
- Recognize the economic value of biodiversity;
- Taking fuller account of biodiversity through public policy and civil and customary society.

The biodiversity strategy establishes the implementation of 27 biodiversity monitoring indicators which must be reported every year.<sup>42</sup> These indicators synthesize in a simple and intelligible way complex

37 <http://documentation.outr-mer.gouv.fr/Record.htm?idlist=4&record=19103370124919215529>

38 Secrétariat of the Pacific Community: <http://www.spc.int/fr/component/content/article/216-about-spc-news/1536-strengthening-and-consolidating-the-partnership-between-spc-and-new-caledonia.html>

39 [http://www.developpement-durable.gouv.fr/IMG/pdf/strategie\\_nationale\\_bilan\\_2004\\_-\\_2010.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/strategie_nationale_bilan_2004_-_2010.pdf)

40 [http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN\\_14\\_-\\_SNB\\_-\\_PA\\_Outre-Mer.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN_14_-_SNB_-_PA_Outre-Mer.pdf)

41 [http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN\\_20\\_Nouvelle\\_Caledonie.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/DGALN_20_Nouvelle_Caledonie.pdf)

42 [http://www2.oeil.nc/sites/default/files/pdf/Rapports\\_techniques/SNB\\_Indicateur\\_biodiversite/2011\\_Rapport\\_SNB\\_OEIL.pdf](http://www2.oeil.nc/sites/default/files/pdf/Rapports_techniques/SNB_Indicateur_biodiversite/2011_Rapport_SNB_OEIL.pdf)

phenomena. As effective supervision tools, they are indispensable to managers in order for them to direct their policy. Built on the State /Pressure /Response model, the 27 indicators were implemented for the first time in NC in 2010 by the *Direction du service d'Etat de l'Agriculture de la Forêt et de l'Environnement* (DAFE; Direction of the State Service of Agriculture, Forestry and the Environment). Their conception and reporting have been entrusted to several competent local actors. In this way, the *Observatoire de l'environnement en Nouvelle-Calédonie* (OEIL; New Caledonia environmental observatory) has developed 11 indicators at the level of the entire territory.

The new 2011-2020 national biodiversity strategy<sup>43</sup> includes among its 20 objectives making biodiversity a driver for regional development and cooperation in the overseas (objective n.10).

For the territory, the Advisory committee on research (ACR) and the Advisory committee on the environment (ACE) are the authors of the [www.biodiversite.nc](http://www.biodiversite.nc) website project, which lists the actions led in favour of biodiversity by institutional structures and communities, research organizations observatories and associations (about thirty actors in total).<sup>44</sup>

### **Sanitation and waste management**

A blueprint for sanitation anticipates that 95% of Nouméans should be connected to the 8 communal wastewater treatment plants by 2030.<sup>45</sup>

Waste management policies have been outlined and implementation of necessary infrastructure is currently taking place. The TRECODEC eco-organism handles the organization of the collection and processing of New Caledonia's 6 regulated waste streams: tires, batteries, oils, car batteries, vehicles and electrical and electronic waste. Collection points are present in all three provinces.<sup>46</sup>

The industrial landfill network covers the three provinces. Projects for *Installations de stockage de déchets dangereux* (ISDD; Hazardous waste storage facilities) and *non dangereux* (ISDND; non-hazardous waste) are currently taking place, and this despite a still high number of unregulated (spontaneous) landfills. A project for class 1 and 2 ISDs is taking place in the northern province, mainly meant for the processing of metallurgical plants' industrial waste (under the Basel Convention) and of household waste from the Voh, Koné and Pouembout (VKP) communes' area. For now, the waste from the Vale and *prony énergies*' plants (coal ash) is processed by the Gadji ISD (southern province).

*Northern Province:* The Northern Province has outlined a provincial waste management model<sup>47</sup> which was approved by the assembly in December 2012. Each intercommunal union or commune manages its own waste collection.

*Southern Province:* A provincial waste management model was approved in 2012.<sup>48</sup>

*Loyalty Islands Province:* The elaboration and implementation of the waste management blueprint<sup>49</sup> is one of the duties of the hazard prevention and pollution control section<sup>50</sup>.

### **Energy**

The work of the *comité permanent de l'énergie* (CPE; standing committee on energy) contributes to the evolutions in energy policy of New Caledonia and its implementation and in particular of the climate and energy model.<sup>51</sup> This model addresses the following topics: buildings, facilities, transport, renewable energy, metallurgical industries and large electricity producers.<sup>52</sup>

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43 [http://www.developpement-durable.gouv.fr/IMG/SNB\\_2011-2020WEB\(2\).pdf](http://www.developpement-durable.gouv.fr/IMG/SNB_2011-2020WEB(2).pdf)

44 marine ecosystems: [http://www.biodiversite.nc/Inventaire-des-actions-marines\\_r58.html](http://www.biodiversite.nc/Inventaire-des-actions-marines_r58.html); terrestrial ecosystems: [http://www.biodiversite.nc/Inventaire-des-actions-terrestres\\_r55.html](http://www.biodiversite.nc/Inventaire-des-actions-terrestres_r55.html)

45 <http://www.noumea.nc/vivre-noumea/eau-et-assainissement/schema-directeur-dassainissement>

46 <http://www.trecodec.nc/espace-particuliers/recycler-en-nouvelle-caledonie>

47 The document was requested but was not transmitted to the consultants.

48 <http://www.province-sud.nc/sites/default/files/old-psud-delib/2013/11-2013-APS.pdf>

49 Document requested

50 <http://www.province-iles.nc/environnement/le-service-de-lenvironnement-se>

51 The document was requested but was not transmitted to the consultants.

52 [http://www.dimenc.gouv.nc/portal/page/portal/dimenc/energie/schema\\_energie\\_climat#ancre32](http://www.dimenc.gouv.nc/portal/page/portal/dimenc/energie/schema_energie_climat#ancre32)

There are also action programs for energy management.<sup>53</sup>

#### 4.4 LEGAL FRAMEWORK AND LAW ENFORCEMENT

The version of the Environmental code applicable to New Caledonia was published in the Official Journal<sup>54</sup>. The environment being an area of provincial jurisdiction, these have adopted the Environmental codes applicable in each province:

- Northern Province environmental code<sup>55</sup>
- Southern Province environmental code<sup>56</sup>
- Environmental regulation adopted by the Loyalty Islands province<sup>57</sup>

A New Caledonian Mining code was published in 2009 in the Official Journal<sup>58</sup>, as well as an ordinance instituting its regulations.

##### Multilateral agreements

French Polynesia has agreed to follow all multilateral environmental agreements (MEA) which France has signed with the exception of the Kyoto protocol on climate change and the Aarhus convention.

##### Regional agreements

NC is a signatory to the following agreements:

| Convention /regional agreement name   | Goal  | Means  |
|---|---|--|
| Apia convention (1976), took effect in 1990   | Nature Conservation in the South Pacific                    | Encourage the existence of protected areas to preserve examples of natural environments.               |
| Nouméa convention (1986)  | Protection of natural resources and the environment         | Protocols on dumping waste into the sea and emergency intervention management during a polluting event |
| Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean | Signed in 2000 and applicable to the entire Pacific region. |  |

#### 4.5 ENVIRONMENTAL AWARENESS

New Caledonia's Environmental Initiation Centre (EIC) is an association which exists since 1996 whose main activities are environmental education, training, site valorisation and development as well as project and partnership support.<sup>59</sup>

A sustainable development service was implemented in NC's Agriculture chamber in order to foster awareness, inform and support farmers on issues related to sustainable development.

Many players are active in biodiversity preservation through information and awareness raising actions. For example, charts available on the web portal for biodiversity in New Caledonia ([www.biodiversite.nc](http://www.biodiversite.nc)) cite several actions centered on awareness.

53 [http://www.dimenc.gouv.nc/portal/page/portal/dimenc/energie/schema\\_energie\\_climat](http://www.dimenc.gouv.nc/portal/page/portal/dimenc/energie/schema_energie_climat)

54 [http://www.juridoc.gouv.nc/JuriDoc/JdTertes.nsf/0/AD27D53F2A8A20594B2574CE0077FA21/\\$File/code\\_environment\\_PL\\_ChG\\_17-06-2008.pdf?OpenElement](http://www.juridoc.gouv.nc/JuriDoc/JdTertes.nsf/0/AD27D53F2A8A20594B2574CE0077FA21/$File/code_environment_PL_ChG_17-06-2008.pdf?OpenElement)

55 [http://www.biodiversite.nc/Code-de-l-environnement-de-la-Provence-Nord\\_a205.html](http://www.biodiversite.nc/Code-de-l-environnement-de-la-Provence-Nord_a205.html)

56 [http://www.biodiversite.nc/Code-de-l-environnement-Provence-Sud\\_a204.html](http://www.biodiversite.nc/Code-de-l-environnement-Provence-Sud_a204.html)

57 <http://www.province-iles.nc/environnement/la-reglementation-environnementale>

58 [http://www.juridoc.gouv.nc/juridoc/jdcodes.nsf/0/439DAD26CCF5ADF34B2576E300774560/\\$File/code\\_minier\\_de\\_la\\_NC\\_PL\\_ChG.pdf?OpenElement](http://www.juridoc.gouv.nc/juridoc/jdcodes.nsf/0/439DAD26CCF5ADF34B2576E300774560/$File/code_minier_de_la_NC_PL_ChG.pdf?OpenElement)

59 <http://www.cie.nc/association>

For waste, the TRECOCODEC website has an educational space.<sup>60</sup>

Concerning energy, the ENERCAL Company commits itself to "children's education". Other operators (SLN, EEC...) also offer informational spaces for the public on their websites. SYNERGIE, an association created in 2009, is comprised of New Caledonia's main businesses involved in renewable energy and energy management.<sup>61</sup>

The University of New Caledonia offers a bachelor's degree in "Life, Earth, and Environmental Sciences".

Shows and magazines centered on the environment and sustainable development are broadcast on the new television channel NCTV.

For the territory, several labels exist in the agricultural field, such as "Responsible agriculture" or "Integrated biological protection".<sup>62</sup>

The underwater pathway of the *île aux canards*, has signs for the environmental awareness of vacationers on all islets surrounding Nouméa.

Numerous actions in the Nouméa lagoons aquarium (child awareness).

Numerous actions led by associations in particular towards children / youth (dry forest tree planting, waste collection, mangrove protection operations, reef monitoring, etc.).

The EPLP (*Ensemble pour la Planète*; Together for the Planet) association leads awareness campaigns for the general public.<sup>63</sup>

#### 4.6 FINANCE FOR THE ENVIRONMENTAL

Funding dedicated to the environment is established at each province annually during the original budget adoption by the members of the provincial assembly.<sup>64</sup>

For waste, a TAP anti-pollution tax is applied to lubricating oil imports. Furthermore, the five waste streams managed by the TRECOCODEC eco-organization are subject to the implementation of an eco-contribution, a sum added to a product's sale price, which allows for the funding of its collection, processing and recycling.

For energy, a renewable energy tax (TER) is applied to gas, and is fixed at 0.6 F CFP/liter. This tax is allocated to the *fonds de concours pour la maîtrise de l'énergie* (FCME; energy management assistance fund). The adjustment of the kilowatt/hour sales price should benefit the renewable energy sector.

For the mining sector, the public administrative institution *Fonds Nickel*, created in 2009, ensures the consistency of the actions of the *Comités de Réhabilitation des Sites Minières* (CRSM; Committees for the Rehabilitation of Mining Sites) on one hand, and its own multiannual rehabilitation program for areas degraded by mining.

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60 <http://www.trecodec.nc/espace-pedagogique>

61 <http://www.synergie.nc/>

62 <http://www.canc.nc/produire-durablement.html>

63 <http://www.eplp.asso.nc/>

64 The exact numbers were requested but were not transmitted to the consultants

## 5 COOPERATION

### 5.1 COOPERATION WITH FRANCE

In the environmental sector, France works with the OMR and the OCT on the protection of coral reefs. After the United Nations conference in Rio, France and a small number of other countries created the ICRI (International Coral Reef Initiative). France afterwards created IFRECOR (*Initiative française pour les récifs coralliens*; French initiative for coral reefs) for its OMR and OCT. IFRECOR in its action for NC<sup>65</sup> mentions numerous goals and actions. The 2006-2010<sup>66</sup> action report outlines projects funded by France, for a total of 506 000 euros. For example:

- the implementation of a Coral Reef Monitoring Network (CRMN) with the University of NC (UNC) and the lagoon aquarium in Nouméa, composed of 31 stations using the Reef Check<sup>67</sup> method;
- the world heritages sites listing of New Caledonia's coral reefs;
- the implementation of an underwater pathway (with the WWF);
- the research on the loggerhead sea turtle (ASNNC).

Several research organizations are present in New Caledonia: IFREMER, the Pasteur Institute, CIRAD, CNRS, IRD... Some of these organizations are active in the *pôle de recherche, d'enseignement supérieur et d'innovation calédonien* (PRESICA<sup>68</sup>; Caledonian research, higher education and innovation centre).

### 5.2 COOPERATION WITH THE EU

The financial instruments of European aid to New Caledonia comprise the EDF's interventions, the EIB's (European Investment Bank) programs, the EU's programs and instruments, as provided in the EU budget. The European Union's aid to New Caledonia includes the Lagoon Aquarium in Anse-Vata, the EGC (*École de Gestion et de Commerce*; business and management school), the Magenta Aerodrome.

#### **European Development Fund (EDF)**

Through the 9<sup>th</sup> EDF, and for the 2004-2007 period, New Caledonia was given € 21,5 million for professional training, in support of the sectoral policies led by the New Caledonian government.<sup>69</sup>

For the 10<sup>th</sup> EDF (2008-2013)<sup>70</sup>, the European Union allocated more than two billion F CFP of aid to New Caledonia. Furthermore, 12 million euros are allocated to the INTEGRE program (*Initiative des Territoires du Pacifique pour la Gestion de l'Environnement*; Pacific Territories Environmental Management Initiative). This integrated coastal areas management project is aimed at the 4 Pacific OCTs.

#### **BEST**

Through the BEST preparatory action (Voluntary scheme for biodiversity and ecosystem services in territories of EU outermost regions and OCTs)<sup>71</sup>, the three following projects were funded:

#### **The GREEN NC project (*Agence de Développement Economique de la Nouvelle-Calédonie*; New Caledonian Economic Development Agency)**

This project supports environmental and natural spaces management in New Caledonia by improving biological knowledge of ecosystems and expanding biodiversity conservation protection and rehabilitation activities in the three Provinces, which are partners to the project. One of this project's tangible results

65 [http://www.ifrecor.nc/spip.php?article67&var\\_recherche=bilan](http://www.ifrecor.nc/spip.php?article67&var_recherche=bilan)

66 [http://www.ifrecor.nc/IMG/pdf/NC\\_Bilan-local\\_2006-2010.pdf](http://www.ifrecor.nc/IMG/pdf/NC_Bilan-local_2006-2010.pdf)

67 <http://www.aquarium.nc/fr/nos-missions/centre-de-recherche/les-etudes-en-cours/119-rorc-et-al>

68 <http://nouvelle-caledonie.ird.fr/toute-l-actualite/actualite-institutionnelle/presica-pole-de-recherche-d-enseignement-superieur-et-d-innovation-caledonien>

69 [http://ec.europa.eu/development/icenter/repository/print\\_cal\\_spd\\_en.pdf](http://ec.europa.eu/development/icenter/repository/print_cal_spd_en.pdf) page 14.

70 [http://ec.europa.eu/europeaid/documents/aap/2011/af\\_aap\\_2011\\_ncl.pdf](http://ec.europa.eu/europeaid/documents/aap/2011/af_aap_2011_ncl.pdf)

71 [http://ec.europa.eu/environment/funding/pdf/wp\\_best.pdf](http://ec.europa.eu/environment/funding/pdf/wp_best.pdf)

will be the consolidation of a network of ecological areas of major importance.

### **The CORAIL project (*Institut des Récifs Coralliens du Pacifique*; Pacific Coral Reef Institute)**

This project aims at equipping New Caledonia and French Polynesia with a set of methods and tools for the evaluation of the ecosystem services provided by coral reefs. With these tools it is expected that, thanks to a sound scientific basis, public authorities will be able to implement effective policies for the sustainable development of marine areas threatened by climate change.

### **The PACIOCEA project (Pacific Ocean Ecosystem Analysis) led by the Marine Protected Areas Agency<sup>72</sup>**

The goal is to analyse and cross-examine environmental, socioeconomic and cultural challenges in order to improve marine environment management on a large scale. In particular, the project aims to identify and implement sustainable management of resources for local population that are heavily dependent on marine ecosystems.

### **FP (Framework Program for Research and Technological Development)**

The PACE-NET and PACE-NET plus projects, coordinated by the IRD, aim to develop sustainable scientific partnerships between Europe and the Pacific.<sup>73</sup>

The NetBiome project, funded by the European Commission during FP6, is a so-called "ERA – NET" project (European Research Area Network) which main goal was to facilitate networking among research 'policies' or 'programs' for sustainable biodiversity management in outermost EU regions and territories. The NetBiome-CSA project took over in 2013.

## 5.3 REGIONAL COOPERATION

NC takes part in these international initiatives in its region:

| <b>Name</b>   | <b>OCT</b>                 | <b>Other members</b>                | <b>Notes</b>  |
|---|----------------------------|-------------------------------------|---|
| SPREP - Secretariat of the Pacific Regional Environment Program <sup>74</sup> | FP, NC, PIT, W&F           | Most Pacific states and territories | <b>Created</b> in 1982, autonomous organization since 1991.<br><b>Goal:</b> promote cooperation, environmental protection, sustainable development.<br><b>Activities:</b> SPREP has helped Pacific island countries prepare National strategies for environmental management for the UNCED. Helps countries follow MEAs such as the Convention on Biological Diversity, the Ramsar convention on wetlands, the UNFCCC (through the Climate change assistance program for Pacific islands). SPREP oversees 4 programs: a program on waste management, one on environmental governance, one on biodiversity and ecosystem management and one on climate change. |
| Pacific Islands Forum   | NC, FP: associated members | Most Pacific states                 | <b>Created</b> in 1971<br><b>Goal:</b> political organization which addresses regional issues and gives more weight to collective opinions in the international community. Mainly focused on regional trade, security and economic questions, including natural resources.  |

<sup>72</sup> <http://www.aires-marines.fr/Documentation/PACIOCEA-un-nouveau-programme-marin-europeen-pour-le-Pacifique-sud>

<sup>73</sup> <http://nouvelle-caledonie.ird.fr/recherche-et-missions/programmes-et-reseaux/projet-europeen-pace-net>

<sup>74</sup> SPREP - South Pacific Regional Environment Programme

|   |   |   |   |
|---|---|---|---|
| SPC - Secretariat of the Pacific Community                              | FP, NC, PIT, W&F                                      | Pacific territories plus Australia, NZ, F and USA | Offers priority work programs to member countries by providing technical assistance, professional and scientific support, research aid and expanding management and planning capacities. The head office is in New Caledonia. SPC has 7 divisions: agriculture and terrestrial resources, fishing and aquaculture, development statistics, health, geosciences, energy and transport, human development |
| Western and Central Pacific Fisheries Commission (COPACO) <sup>75</sup> | Participating territories : NC, FP<br>Members: France | All territories in the region                     | WCPFC is one of the Regional Fisheries Management Organizations (RFMO), international organizations implemented by countries with fishing interests in a specific geographical zone. <sup>76</sup>  |
| SPTO - South Pacific Tourism Organization                               | NC<br>FP  | 10 Pacific states (plus China)                    | Intergovernmental body mandated for tourism in the south Pacific.<br><b>Goal:</b> sustainable tourism development in the south Pacific.<br>Head office: Suva, Fiji.   |

#### 5.4 OTHER INTERNATIONAL COOPERATION RELATING TO THE ENVIRONMENT (OR ENVIRONMENTALLY SENSITIVE SECTORS)

For coastal research, New Caledonia collaborates with:

- The *Australian Nuclear Science and Technology Organization*, specialized in metal bio-accumulation.
- The International Atomic Energy Agency (IAEA) headquartered in Monaco, specialized in metals present in living organisms.
- James Cook University, in Townsville, Australia, specialized in the particle dynamics in rivers and sedimentation.
- University of the South Pacific, based in the Fiji islands, specialized in marine biology, chemistry and physics.

## 6 CONCLUSIONS AND RECOMMENDATIONS

The main problems and challenges for the environment in New Caledonia are:

- the threat to a rich and unique biodiversity;
- fossil fuel dependence;
- river and lagoon pollution and sedimentation;
- climate change.

Furthermore, damages caused by nickel mining is a problem specific to New Caledonia.

<sup>75</sup> WCPFC: Western and central Pacific fisheries commission

<sup>76</sup> [http://ec.europa.eu/fisheries/cfp/international/rfmo/index\\_fr.htm](http://ec.europa.eu/fisheries/cfp/international/rfmo/index_fr.htm)

| Goal  | Action  | Current situation   | Priority and timeframe | Responsible bodies  | € and HR needs | Risks and Assumptions | Possible funding sources |
|---|---|---|------------------------|---|----------------|-----------------------|--------------------------|
| Sustainable management, biodiversity preservation, ecosystem services | Protection of species and their habitats against fire, water scarcity, soil erosion due to mining   | Some of the lagoons are listed in UNESCO's world heritage sites. Several endemic species, in particular birds and reptiles, are threatened with extinction. |                        | Environmental division (Loyalty Islands Province)<br>DENV (Southern Province)<br>DDEE (Northern Province) |                |                       |                          |
|   | <p><b>Indicative activities</b></p> <ul style="list-style-type: none"> <li>- Create a protected areas network, with the introduction of legislation on the protection perimeter and the management plan for each area;</li> <li>- Extend current measures to protect threatened terrestrial and marine species and reduce loss of natural habitat;</li> <li>- Development of an invasive species action plan ;</li> <li>- Implementation of the invasive species plan;</li> <li>- Production of educational and awareness raising tools and awareness campaign on the importance of ecosystem services for different social groups (students, judges, parliament members, private sector) ;</li> <li>- Extend law enforcement (taxation and penalties) for mining;</li> <li>- Creation of a Ramsar site (44 000 ha) ;</li> <li>- Study the water resources;</li> <li>- Develop solutions for sustainable water management.</li> </ul> |   |                        |   |                |                       |                          |

| Goal                          | Action   | Current situation                | Priority and timeframe | Responsible bodies  | € and HR needs | Risks and Assumptions | Possible funding sources |
|-------------------------------|--|----------------------------------|------------------------|---|----------------|-----------------------|--------------------------|
| Sustainable forest management | Reduce forest fragmentation, promote its extension and sustainable management  | Existing program for dry forests |                        | Environmental division (Loyalty Islands Province)<br>DENV (Southern Province)<br>DDEE (Northern Province) |                |                       |                          |
|                               | <p><b>Indicative activities</b></p> <ul style="list-style-type: none"> <li>- Develop a forest strategy including existing spaces and areas to be reforested or extended;</li> <li>- Update a forest inventory, on the basis of which sustainable management action plans can be developed;</li> <li>- Establish a territorial forest reserve;</li> <li>- Establish different types of forests for different operators, including communal forests;</li> <li>- Promote forest co-management;</li> <li>- Engage in environmental rehabilitation with companies in the mining industry; depending on the strategy, reforestation, normalization of deviated streams, etc. (A rehabilitation plan should be part of the EIA needed to obtain a business license - its non-implementation would mean the impossibility to obtain new licenses) ;</li> <li>- Reinforce surveillance services.</li> </ul> |                                  |                        |   |                |                       |                          |

| Goal                                | Action   | Current situation | Priority and timeframe | Responsible bodies  | € and HR needs | Risks and Assumptions | Possible funding sources      |
|-------------------------------------|--|-------------------|------------------------|---|----------------|-----------------------|-------------------------------|
| Integrated coastal zones management | Develop and implement an integrated management plan for coastal zones  |                   | 5 years                | Environmental division (Loyalty Islands Province)<br>DENV (Southern Province)<br>DDEE (Northern Province)<br>ZONECO |                |                       | INTEGRE (3 pilot sites in NC) |
|                                     | <b>Indicative activities</b><br>- Engage and coordinate different actors (environmental, territorial planning, fishing, police, defense, ports, tourism, rural development, local authorities) ;<br>- Develop a study on economic potential and environmental risks in the coastal zone including climate change and the legal framework;<br>- Organize workshop to discuss options;<br>- Develop the integrated management plan in coastal zones;<br>- Draft the legislation necessary to the plan's implementation;<br>- Develop sustainable ecotourism including local communities. |                   |                        |   |                |                       |                               |

| Goal                                     | Action  | Current situation | Priority and timeframe | Responsible bodies | € and HR needs | Risks and Assumptions | Possible funding sources |
|--|---|-------------------|------------------------|--------------------|----------------|-----------------------|--------------------------|
| Sustainable marine ecosystems management | Extend conservation of marine biodiversity and ecosystems   |                   |                        | SCRRE<br>ZONECO    |                |                       |                          |
|  | <b>Indicative activities</b><br>- extend enforcement of the underwater mining law<br>- Regional cooperation for the control of fishing activities (FFA1& WCPFC) |                   |                        |                    |                |                       |                          |

<sup>1</sup> Fisheries Forum Agency

| Goal             | Action  | Current situation   | Priority and timeframe | Responsible bodies  | € and HR needs | Risks and Assumptions | Possible funding sources |
|------------------|---|---|------------------------|---|----------------|-----------------------|--------------------------|
| Waste management | Waste management modernization including recovery   | Production of household and equivalent waste in the range of 250 000 tons per year. More than 20 000 tons of hazardous waste and more than 200 unauthorized dump sites to be rehabilitate.<br>Existence of provincial waste management models and of a sanitation blueprint |                        | Environmental division (Loyalty Islands Province)<br>DENV (Southern Province)<br>DDEE (Northern Province) |                |                       |                          |
|                  | <b>Indicative activities</b> <ul style="list-style-type: none"> <li>- Development of an innovative waste management plan which includes communities;</li> <li>- Study economic profitability of waste (composting, recycling, energy recovery);</li> <li>- Engage the private sector in establishing itself in sectors related to waste valorisation;</li> <li>- Rehabilitation of all old waste dump sites and construction of landfill facilities on new sites;</li> <li>- Open a waste sorting centre;</li> <li>- Build an experimental organic waste composting platform;</li> <li>- Eliminate and process agricultural waste (pesticides and fertilizers);</li> <li>- Modernize the waste management legal framework.</li> </ul> |   |                        |   |                |                       |                          |

| Goal  | Action   | Current situation  | Priority and timeframe | Responsible bodies | € and HR needs | Risks and Assumptions | Possible funding sources |
|---|--|--|------------------------|--------------------|----------------|-----------------------|--------------------------|
| Adaptation and mitigation of climate change | Adoption/implementation of the climate and energy plan   | NC's GHG emissions rate per capita is among the highest in the world |                        | DIMENC             |                |                       |                          |
|   | <b>Indicative activities</b> <ul style="list-style-type: none"> <li>- Study whether the ratification of climate change agreements is feasible and beneficial in terms of potential benefits and costs;</li> <li>- Implementation of the REDD+ program and Clean Development Mechanisms (CDM) in forested areas;</li> <li>- Study the impact of CC in NC from a scientific point of view, establish scenarios;</li> <li>- Initiate a process of reflection on energy, including electricity and transport, which should result in a policy promoting renewable energy and energy efficiency, if possible including profit incurred from emissions reduction;</li> <li>- Develop a national adaptation plan and a CC mitigation plan - with a funding mobilization strategy (external and internal (e.g. taxes or subsidies, funding allocations for certain themes));</li> <li>- Engage in the development of renewable energy at the regional level;</li> <li>- Participate in the regional strategy for the construction of sustainable development towards climate and natural disasters.</li> </ul> |  |                        |                    |                |                       |                          |

| Goal                    | Action  | Current situation   | Priority and timeframe | Responsible bodies  | € and HR needs | Risks and Assumptions | Possible funding sources |
|-------------------------|---|---|------------------------|---|----------------|-----------------------|--------------------------|
| Sustainable agriculture | Promotion and financial support of sustainable agriculture  | For the territory, several labels exist in the agricultural field, such as "Responsible agriculture" or "Integrated biological protection". |                        | DAFE<br>Environmental division (Loyalty Islands Province)<br>DENV (Southern Province)<br>DDEE (Northern Province) |                |                       |                          |
|                         | <p><b>Indicative activities</b></p> <ul style="list-style-type: none"> <li>- Enhancement of soil fertilization capacity - training sessions and follow-up for farmers' associations;</li> <li>- Promotion of the use of biocontrol – training, follow-up, product import rate reduction;</li> <li>- Development of nurseries for the sale of seeds and plants adapted to the soil and climate conditions;</li> <li>- Studies on the species best adapted to climate change, which already exist and are not invasive, and improvement of such species.</li> <li>- Promote integrated agro-forestry and livestock production.</li> </ul> |   |                        |   |                |                       |                          |

ANNEX C :  
PITCAIRN

# ENVIRONMENTAL PROFILE

## PITCAIRN ISLAND



|   |    |
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## SUMMARY

Pitcairn is an extremely remote, small British territory in the South Pacific comprising four islands, only one of which, Pitcairn Island, is inhabited. Henderson Island is a UNESCO World Heritage site since 1988 and proposals have been made for the three smaller islands as well as two sites on Pitcairn Island to become Ramsar (Wetlands) sites. Pitcairn wants to establish a no-take marine protected area in their entire EEZ except for the 12 nautical miles around Pitcairn Island. Improved access by sea could increase the flow of eco-tourists and scientists. This would require careful control to avoid the accidental introduction of invasive species that can irreversibly harm local flora and fauna. Maintaining Pitcairn's pristine environment whilst improving the living standards for its inhabitants requires a delicate balance.

## 1 BACKGROUND INFORMATION

Pitcairn is a British overseas territory, situated in the South Pacific, south-east of French Polynesia and half way between New Zealand and South America. Pitcairn is one of the world's most remote group of islands and has 52 inhabitants, all living in the only settlement, Adamstown, the majority of whom are descendants of the mutineers of the British Royal Navy's HMAV Bounty, who, with their Tahitian companions, settled Pitcairn in 1790. The other 3 islands which are part of Pitcairn territory are uninhabited: Henderson Island is a World Heritage Site and there are two smaller low-lying atolls (Oeno and Ducie).

|                          |   |
|--------------------------|---|
| <b>Name of territory</b> | Pitcairn  |
| <b>Region</b>            | South Pacific   |
| <b>Land area</b>         | 47 km <sup>2</sup>  |
| <b>Maritime claims</b>   | 836,108 km <sup>2</sup>   |
| <b>Population</b>        | 52 permanent resident population (March 2012) and 10 non-residents <sup>1</sup> |
| <b>GDP/capita</b>        | Barter economy  |
| <b>Literacy rate</b>     | 100% of population 14 and older   |
| <b>Unemployment rate</b> | Not applicable  |

Pitcairn Island is 7.5 km<sup>2</sup> and of volcanic origin. It has a rocky coastline with cliffs and no natural harbours. Its climate is tropical but mild, with easterly winds. The average temperature is 21°C with about a 10°C difference between the warmest and coldest months. Typhoons occur between November and March. The highest point on the island is Pawala Valley Ridge at 347 m.

Henderson is 37 km<sup>2</sup> and a very unusual elevated coral atoll (makatea). It has an exceptionally remote location with over 3000 miles from the nearest continent. The old lagoon floor of the island is now raised to an elevation of about 30m. There is a fringing reef 200m wide on the north, north-west and north-east sides of the island, backed by a wide beach.

Oeno is a low-lying undisturbed atoll to the north of Pitcairn, consisting of a small central island surrounded by a lagoon with a fringing reef. The lagoon is 4 km in diameter and uniformly shallow (3m) with scattered coral reefs separated by sand. To the north, there is a passage where the Pitcairners' longboats can enter the lagoon.

Ducie Atoll, to the east of Pitcairn, is the southernmost atoll in the world. It consists of four islands surrounding the largest part of the lagoon. It is the smallest of the four islands with an overall area of

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<sup>1</sup> The 10 non-residents are Governor's representative, doctor, teacher, police officer, FCA (Family and Community advisor) and their partners (March 2012)

6.4km<sup>2</sup> of which 0.74km<sup>2</sup> is emergent land raising 1-2m above sea level. Acadia, the largest island of the atoll is 2.5 km long and 250 m wide, with a maximum elevation of 3 m. Ducie is generally not visited by Pitcairners due to its vast distance from Pitcairn.

Of the four islands, only Pitcairn has freshwater.

Despite its remote location and small size, Pitcairn has a dedicated shipping service for cargo and passengers (MV Claymore II with 12 passenger berths) that is subsidised by the British Government. The current shipping contract provides annual services for: 4 cargo voyages to and from New Zealand; and 12 passenger services to and from Mangareva, one of the southernmost islands of French Polynesia with regular air flights to and from Tahiti and beyond.

Pitcairn has a permanent resident population of 52 (March 2012) and 10 non-residents (Governor's representative, doctor, teacher, police officer, FCA (Family and Community Advisor) and their partners (March 2012)) who are generally on one-year contracts. The languages are English and "Pitkern", a mixture of 18th century English and a Tahitian dialect of the first inhabitants.

All land is owned by the government of Pitcairn Islands and allocated and leased to the Island community as required under one of three the categories house land, garden land or orchard land. All of the Islanders have sufficient land to meet their reasonable needs.

In terms of its finances, Pitcairn has been dependent on annual budgetary aid since 2003 following the decline in the international stamp market (previously the island's main source of income) in the 1990s and the depletion of its reserve fund in 2002. Over the last five years, the annual costs of supporting Pitcairn have increased significantly while annual income has remained more or less static. The budget deficit more than doubled, from NZ\$ 2 million in 2006/07 to NZ\$ 4.9 million in 2011/12. The territory received in 2011 and 2012 about 3 million €/year (about €57000 per person) in budgetary aid and grants, while the territory generates about 600 thousand NZ\$/year<sup>2</sup>. About 50% of the cost of budgetary aid is payment for shipping services, the payment to non-residents, who are medical health staff, teachers, police, etc. amounts to 32% of Government expenditure<sup>3</sup>, the cost of the Pitcairn Island Office in Auckland and a number of subsidies are also important. One source of government income is the sale of the island's postage stamps and coins, others are passenger fares and recovered freight costs, as well as electricity. The registration of internet domains also generates some income. There is no taxation, and the government is the only employer. There is a school, a health centre, police station, a courthouse, a church and a cooperative store. The entire population is entitled to school education.

Employment on the island is divided between the Government sector (many part-time jobs) and private individual and family activities. Unemployment does not exist on Pitcairn. There are 82 paid Government posts (e.g. Island Councillors, division managers, administrative functions, technicians and general operatives), and most of those employed hold one or more positions. In the absence of formal taxes, each person between the ages of 15-65 has to carry out public work. Most people hold government jobs paid at a rate of \$10 per hour.

The islanders are mainly self-employed, though small allowances are paid by the Pitcairn Administration Office for performing maintenance and other tasks as required. Private activities include: carving and sale of handicrafts (mostly to cruise ship passengers), beekeeping and honey production for export, fishing, fruit and vegetable cultivation, some animal husbandry, general maintenance, home-stay tourism and bartering with cruise ships.

Imports include: fuel, machinery, building materials and foodstuffs come primarily from New Zealand. Goods have to be lowered into longboats from 6ft x 6 ft containers from larger ships, taken ashore and transported uphill to Adamstown by quad bike/tractor from Bounty Bay.

Pitcairn's soils are volcanic and fertile. Both tropical and temperate fruits and vegetables are cultivated,

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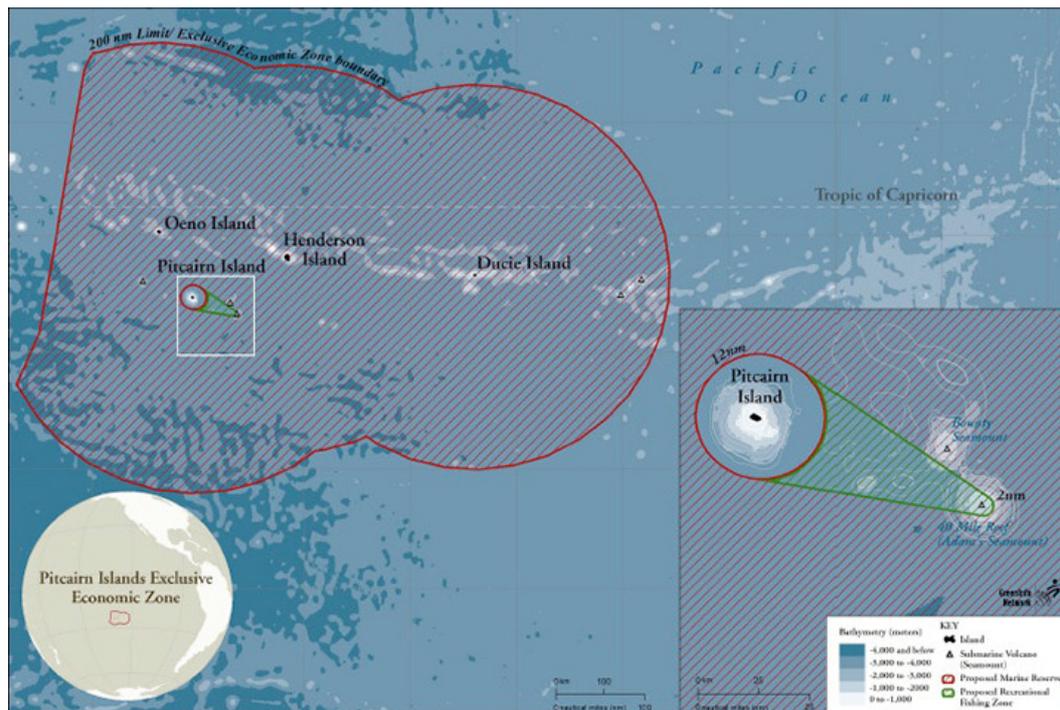
<sup>2</sup> <http://www.government.pn/2012%20Summary%20Financial%20Statements.pdf>

<sup>3</sup> Pitcairn Islands Strategic Development Plan, 2012 - 2016.

such as citrus, sugarcane, watermelons, bananas, yams, and beans, mostly for local consumption.

Fish are relatively abundant in the seas around the islands at least for local consumption. Spiny lobsters and a large variety of fish are caught for meals and for trading aboard passing ships. Fish such as nanwee, white fish, moi and opapa are caught in shallow water, while snapper, big eye and cod are caught in deep water and yellow tail and wahoo are caught by trolling. (Eco)tourism in Pitcairn has economic potential however access to the territory would need to be improved.

Pitcairn wants to establish a non-take marine protected area (MPA) in 99% of its EEZ (see below). Commercial fishing can continue within the 12 nautical miles from Pitcairn Island. The ban of fishing in the MPA would have an immediate potential cost to Pitcairn's economy of about NZ\$ 30,000 in licence fees for tuna fishing forgone each year. On the other hand, with an MPA Pitcairn hopes to attract scientists and tourists. Not high number of visitors is required to make a positive impact on the economy.



Map of the proposed Marine Protected Area<sup>4</sup>. The red hatched area represents the proposed marine reserve and the green hatched area represents the area where non-commercial sustainable fishing would be permitted. Source: Pew Charitable Trusts.

## 2 BIOGEOGRAPHY, ENDEMISM AND IMPORTANCE FOR GLOBAL BIODIVERSITY

On the whole, Pitcairn's biodiversity has been little documented.

Recent botanical research on Pitcairn Island identified 14 plant communities: four coastal, six forest, two fernlands and two scrub communities. Less than 30 % of the island is covered by native forest. Fernlands also cover large areas, including both eroding areas and ridge tops. Coastal vegetation comprises rock and cliff communities with limited strand vegetation.<sup>5</sup> Pitcairn has suffered intense deforestation and the only natural forests remaining are on the ridge of the central mountain. The island counts 81 species of indigenous vascular plants, of which 10 are endemic<sup>6</sup>. About 26 species of land snail were identified, 7 of

<sup>4</sup> See more at: <http://www.pewenvironment.org/news-room/other-resources/proposal-for-the-establishment-of-a-pitcairn-islands-marine-reserve>

<sup>5</sup> Kingston and Waldren (2003).

<sup>6</sup> Kingston, N. & Waldren, S. 2005. A Conservation appraisal of the rare and endemic vascular plants of Pitcairn Island. Biodiversity and

these species are thought to be prehistoric adventives and a further 3 are likely to be prehistoric introductions. Pitcairn has one endemic bird species, the Pitcairn reed-warbler. This bird appears to be distributed throughout the island in all habitats.<sup>7</sup>

Henderson is a UNESCO World Heritage Site, its ecology is still nearly intact in the majority of the island and has not been damaged by human activity. Its plateau is protected from the periodic inundation of the sea during cyclones. As a result, a diverse fauna and flora has developed with many endemic species. The flora of Henderson Island contains some 63 native higher plants including nine endemic. There is a large variety of mite fauna on Henderson and many are apparently endemic. There are 26 species of spider and 9 species of isopod, with 3 endemic to Henderson. Henderson Island is the nesting site for 12 different seabird species including 4 types of petrels, and has 4 endemic bird species: the Henderson crake, the Henderson fruit-dove, the Henderson lorikeet and the Henderson reed-warbler. Green turtles nest on Henderson Island.

Oeno and Ducie are pristine atolls. The central lagoon at Ducie shows well-preserved dead corals, encrusted by a live coral assemblage. Presumably the formerly-abundant corals have been killed by influxes of cold water to this island, which is towards the southern limit of coral growth. Oeno is a low coral atoll with a maximum elevation of 1-2m and an overall area of 15km<sup>2</sup>. It consists of two small islets Sandy Islet and Woody Islet in a shallow lagoon. Pitcairners last visited the island in 2009.

Oeno, Ducie and Henderson are all important areas for seabirds, hosting more than 10,000 pairs on a regular basis. Over 90% of the world's Murphy's Petrels (over 200,000 breeding pairs) nest on Ducie<sup>8</sup>, making the atoll of supreme importance for this species. It is also important for two other surface-nesting petrels: the Herald and the Kermadec.<sup>9</sup>

| Critically endangered | Endangered | Vulnerable | Near Threatened | Extinct (Extinct in the wild) | Lower risk/conservation dependent | Data Deficient |
|-----------------------|------------|------------|-----------------|-------------------------------|-----------------------------------|----------------|
| 1                     | 9          | 30         | 24              | 0                             | 4                                 | 10             |

The waters around the Pitcairn Islands have more than 1249 marine species including 365 fish species, 22 whale species and 2 species

of turtles<sup>10</sup>. The Pitcairn Council (see section 4.1 below) has approved the implementation of a Marine Reserve within Pitcairn's EEZ based in a proposal presented by the Pew Charitable Trusts in July 2013. The purpose of the Pitcairn Islands Marine Reserve is to protect the special marine environment, namely the abundant biodiversity, two of the most southern coral atolls in the world, and the deepest well developed tropical coral reef. The MPA aims also to provide a world-class, fully protected marine reserve to attract scientific research, non-consumptive tourism and other non-extractive economic uses, and favourable global recognition for Pitcairn. The marine reserve will cover 830,000 square kilometres of near pristine waters - this is 99% of the EEZ including all of the waters of Oeno, Henderson, and Ducie islands and the largest highly protected marine reserve in the world.

Ducie Island, Oneo Island, Henderson Island and 2 sites in Pitcairn are proposed to become Ramsar sites.

Conservation 14: 781-800 and Kingston, N. 2010. Island Plant Conservation. The case study of Pitcairn Island. Lambert Academic Publishing.

7 Procter and Fleming (1999).

8 Sanders, S.M. ed. 2006. Important Bird Areas in the United Kingdom Overseas Territories. Sandy, UK: RSPB

9 Sanders (2006).

10 <http://www.pewenvironment.org/news-room/video-library/pitcairns-pristine-environment-85899515388#sthash.SqrZ9zWa.dpuf>

### 3 STATE OF THE ENVIRONMENT

#### 3.1 OVERVIEW

All islands have suffered from invasive species (plants, trees, animals). More than half the flora of Pitcairn Island are either threatened or likely to become so. On Henderson less than 20% of the flora are threatened. On Henderson hardwoods (miro and toa) used for handicrafts is a threat. In Pitcairn rose-apple is posing serious problems, including on water resources as it grows in water catchments. The rose-apple is being eradicated in places to allow the original vegetation to come back. There are also goats (at present the British Government is working with the Pitcairn Island Council on a goat eradication/management project), cats and rats. A successful campaign has eradicated rodents from the two low-lying atolls, while on the other islands globally important seabird populations (petrels) are threatened by Pacific rats.

The supply and demand of drinking water and for irrigation is being revised and assessed including the elaboration of a cost-effective plan for the future increase storage, well-drilling, desalination, etc.

The islanders re-use or burn most of their waste. One landfill is full. The introduction of a waste management site is foreseen for 2015.

Electricity is provided by 2 diesel generators working 14 hours/day. There are 975 m of concrete road from Bounty Bay to Adamstown, and 15.4 km of graded earth roads. Means of transport are by 4-wheel drive quad bikes. There are also two cars on the island.

The island's economy is very basic, and new opportunities are sought for improving air and sea access, as reflected in applications for EU funding.

#### 3.2 MAIN CHALLENGES

In 2005, the Environmental Vulnerability Index<sup>11</sup> indicated the Pitcairn archipelago as *Vulnerable*, even with significant information gaps as only 48% of topics were covered.

The most pressing issues identified were dry periods (as the recent drought confirms), the percentage of land lower than 50 m above sea level and the reduced land area in a fragmented country; distance to the closest continent; number of known species that migrate outside the territorial area at any time during their life spans (including land and all aquatic species) / area of land; number of endangered and vulnerable species per 1000 km<sup>2</sup> land area (IUCN definitions).

The main environmental challenge faced by Pitcairn was also identified in the 2006-07 Environmental Profiles and its gravity is provided in the table below.

| Issues  | Situation in 2006-07 | Current Situation |
|---|----------------------|-------------------|
| Invasive species and other threats to flora and fauna | Severe               | Severe            |

New Emerging issues are:

| Issues  | Current situation  |
|---------|--|
| Erosion | Soil erosion is a problem on the eastern side of the Island due to prevailing winds. Again project INTEGRÉ is addressing environmental issues including ways to combat erosion. A goat management plan is being written. |
| Water   | Pitcairn Islanders are experiencing longer, more severe periods of drought and variability in rainfall. Water issues have been addressed by the provision of a substantial number of                                     |

<sup>11</sup> [http://www.vulnerabilityindex.net/EVI\\_Country\\_Profiles.html](http://www.vulnerabilityindex.net/EVI_Country_Profiles.html)

|       |  |
|-------|--|
|       | water tanks under an EU/SOPAC project  |
| Waste | Waste is disposed of and buried in large holes away from the populated area. A plan is being developed to manage the safe disposal of batteries and other toxic materials. This will be addressed under the INTEGRÉ project. |

### **Challenge 1 - Invasive species and other threats to flora and fauna - Severe**

On Pitcairn, the introduction of invasive species has damaged indigenous species. The invasive rose-apple *Syzygium jambos*, introduced as a source of fuelwood to the island, is now outcompeting the native forest species *Meterosideros collina* and *Homalium taypau* through much of the centre of the island. *Syzygium jambos* forms monospecific stands which contain few native species. The total species diversity was found to be adversely affected by its presence.

Feral goats have seriously affected the local coastal habitat where there is much evidence of grazing of the *Pandanus tectorius* coastal forest. The rat eradication programme on Henderson was unsuccessful and a further attempt funded by RSPB is planned for 2015.

Much of the local woods, used for fuel, building and carving for export have also been over-exploited.

The islands' small size and remoteness create special difficulties. The necessary conservation and monitoring activities require scarce manpower and finance.

## **4 ENVIRONMENTAL GOVERNANCE**

### **4.1 CONSTITUTION**

The governance and institutional structure is set out in the Pitcairn Constitution Order 2010. The (non-resident) governor is appointed by the Queen and this function was assigned to the British High Commissioner in Wellington (New Zealand). The governor has legislative powers subject to the approval of the UK Foreign Secretary in certain fields and is assisted by the Pitcairn Islands Office (PIO) in Auckland, which provides administrative and financial support.

At island level, the Pitcairn Council consists of the Island Mayor (elected every three years), the Island Secretary (appointed – not elected and non-voting), Deputy Mayor, five Councillors (elected every two years), and the Governor's Representative (a UK diplomat who resides in Pitcairn and participates in Island Council meetings, but does not have the right to vote). The Council manages the internal affairs under the presidency of the Island Mayor. Actual on-island operations are supervised by four Divisional Managers (Community Development; Natural Resources; Finance; Economics and Operations) who report to the Island Council.

Within this structure, the Island Council and the Divisional Managers exercise general day-to-day administration, with advice and support from the Governor's Representative, PIO and the Governor's Office. General overall supervision is exercised by the FCO and DFID. The latter is responsible for administering the annual budgetary aid requirements (recurrent and investment expenditure) in collaboration with the Island Council, the PIO and the Governor's Office.

### **4.2 INSTITUTIONAL FRAMEWORK**

Environmental issues are dealt with by the Natural Resources Division. This division comprises 10 part-time staff (October, 2012), and is responsible for: preservation and conservation of the natural environment; bio-security; natural resource management (e.g. land, water, fisheries, etc.); nursery;

promotion of local agricultural production and export; eco-trail maintenance; land court and surveyors (including land tax administration); environmental supervision of the other islands; liaison with international environmental organisations (e.g. RSPB and the Pew Charitable Trust); liaison with PIO and DFID.

The Pitcairn Island Tourism Department is responsible for the implementation of the Tourism Strategic Plan (2011-2015).

#### 4.3 POLICY FRAMEWORK

Pitcairn has an Environmental Charter that was signed with the UK Government in 2001. The new Overseas Territories Strategy White Paper "The Overseas Territories: Security, Success and Sustainability" was published in June 2012 is based on the principles of self-determination, mutual responsibilities and autonomy with a pledge of UK help when needed. In this context, the Pitcairn Government has prioritized: the mitigating isolation and risks through improved shipping and transport infrastructure; the economic growth and self-sufficiency; the promotion of tourism, good governance and safe and secure environment.

The Strategic Development Plan (2012-2016) identifies the conservation and protection of the natural environment of Pitcairn Islands as a main objective which comprises: the update of environmental action plan with support of OTEP; the support of environmental projects with international agencies and NGOs; and the environmental safeguard of Henderson Island as World Heritage Site.

The Tourism Strategic Plan (2011-2015), with a budget of € 5 million, main objective is to develop tourism as the territory's main industry and thus to create an industry that will contribute to reducing the territory's financial dependence on budgetary aid. This objective is to be achieved by increasing the numbers of visitors, including overnight guests, of daily passengers from cruise ships landed, and of private yachts coming to Pitcairn.

The most important environmental strategies are the guidelines and strategies set out in the Pitcairn Islands Environment Management Plan (2008) and Henderson Island Management Plan (2004-2009). These are currently under review.

The Henderson management plan (2004-2009) has expired and requires update. The Henderson plan seeks to:

- create an administrative structure to ensure implementation;
- tackle the threat of alien fauna and flora;
- prevent the removal of biological, geological and Polynesian archaeological material;
- control tourism and associated visitor impact, excluding visitors from the plateau and ensure that it is sustainable, non-damaging and contributes revenues to the Pitcairn economy;
- prevent reef damage;
- reduce the exploitation of miro and toa timber to sustainable levels - management should therefore be designed to foster sustainable use of Henderson's woods;
- continued monitoring and research.

Species action plans are lacking, though capacity is a major challenge (the Pitcairn Natural Resources Division is manned by only part-time staff).

Various reviews have taken place on environment-related issues such as fisheries, access, shipping and tourism, designed to support informed decision-making in these fields as Pitcairn develops facilities on and for the island. Other relevant policy papers related to nature and the environment are:

- Foreign and Commonwealth Office (FCO) manual on Disaster Management in the Overseas Territories (2007).
- Project proposal being prepared for review of sanitation, waste and water on Pitcairn Island.

- Land survey recently undertaken will determine appropriate land use - ongoing project.

#### 4.4 LEGAL FRAMEWORK

Pitcairn participates in the following Multilateral Environmental Agreements (MEAs):

| MEA  | Extended      | Effective     | Comments   |
|--|---------------|---------------|--|
| Convention on Biological Diversity   |               |               | Signed - not yet extended.   |
| Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES)                | August 1976   | October 1976  |  |
| Bonn Convention on the Conservation of Migratory Species of Wild Animals                                   | July 1985     | October 1985  | Signed - not yet extended. Pitcairn government sees the extension of the agreement on the conservation of Albatrosses and Petrels (ACAP) (19/6/2004) and of Indian Ocean Turtle Memorandum of Understanding (IOT MoU) as very useful.  |
| London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter              | November 1975 | December 1975 |  |
| Convention on Wetlands of International Importance (Ramsar)  | January 1976  | May 1976      | No sites yet listed; but 2 sites on Pitcairn Island (Bowns Water and Costal Water) and the other 3 islands (Ducie, Henderson and Oeno) have been proposed.   |
| Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage)           |               |               | Henderson Island was designated in 1988 as a World Heritage Site by UNESCO for meeting the following criteria:<br><ul style="list-style-type: none"> <li>- containing superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.</li> <li>- containing the most important and significant natural habitats for <i>in-situ</i> conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.</li> </ul> |
| Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (SPREP) | July 1987     | Not yet       | Signed in respect of Pitcairn, Henderson, Ducie and Oeno Islands (Ratification has not taken place)  |

The following legal instruments have been adopted:

| Legal Instrument                        | Remarks   |
|---|---|
| Local Government Ordinance (2012)       | Establishes the basis for the Environmental Impact Assessment (EIA) policy. Consent from the Council is required for any development.   |
| Freedom of Information Ordinance (2012) | Includes a right to appeal any decision made not to publish information and which will enable more open and transparent Government. Subject to certain exemptions, the Ordinance gives any person the right to request information from a public authority. |
| Apiaries Ordinance                      | Beekeeping regulations, including disease prevention and importation  |

|   |   |
|---|---|
| Endangered Species Protection Ordinance (2004)        | Largely designed to implement CITES. It provides for the declaration of "endemic management zones" with special habitats protection measures. No terrestrial or marine endemic management zones have been declared to date. Henderson Island has a Management Plan (2004-2009), published 2004 by the FCO in conjunction with the Pitcairn Islands Administration and the RSPB, which has expired and requires update.  |
| Fisheries Zone Ordinance (2001)                       | Provides the legislative basis for fisheries management. The ordinance establishes and regulates fishing within Pitcairn's EEZ, and provides for the issue of licences.   |
| Prevention of Collisions at Sea Ordinance (2001)      | Implements the International Regulations for Preventing Collisions at Sea, 1972 (as amended by a resolution of the Inter-Governmental Maritime Consultative Organization of 19th November, 1981).   |
| Land Tenure Reform                                    | Elaboration of a land register. Definition of what happens to land when its Land Allocation Title holder departs from the island for indefinite period. Housing land, garden land and orchard and forest land.  |
| New Immigration Control Ordinance 2006                | Restrictions on visitors and restriction on certain vessels carry fare-paying passengers.   |
| Local Government Regulations - Part III and IV (1971) | This covers animals and wildlife. Part III incorporates provisions for implementing CITES and Part IV the Bonn Convention. Section C deals specifically with wildlife and is concerned primarily with species protection. The legislation generally prohibits the killing or taking of eggs of wild birds and, subject to the authority of the Wild Bird Protection Committee, controls the extent to which certain prescribed species may be exploited. An amendment in 1982 protects species (three whales, three seabirds and two turtles) restricting their capture, killing or harassment, and protects migratory species. There are no permits or quotas, but fines can be imposed for breaches of the regulations. |
| Local Government Regulations                          | Section 7<br>Part I,II,III,IV,V,VI,VIII & XI  |
| Local Government Regulations, other parts             | Rules covering such issues as rubbish disposal, digging of cesspits. There are no permits or quotas, but fines can be imposed for breaches.   |

Consent from the Council is required for any development and an EIA policy is in place. An EIA was carried out for the introduction of a new shipping route, to address risks from the import of products from the tropics, for the construction of a new breakwater and the introduction of wind turbines. The development regime is basic, but taking into account the uniquely small size of the Pitcairn population this may be adequate. A wide-ranging Freedom of Information Ordinance is in place.

There are no permits, requirements or quotas laid down in the local Regulations but fines can be imposed for breaches. Regulations are enforceable by the Island Council and the government. There are no agencies except the local police, the Director of Biosecurity and the Quarantine Officer.

#### 4.5 ENVIRONMENTAL AWARENESS

A total of NZ\$ 5,000 has been allocated under the Strategic Development Plan to the development of promotional material on Pitcairn's natural environment which will include production of brochures and development of website to illustrate and to promote the flora and fauna for eco-tourism and scientific interest.

One of the management objectives for the Henderson Island was the promotion of awareness, through education and research, of the intrinsic value and significance of Henderson Island and its biota.

## 4.6 MONITORING

Species action plans are lacking and monitoring and review procedures are neither anchored in legislation nor put into practice.

No regular monitoring of air emissions, water quality, etc. takes place. Pitcairn has some small springs which are used from time to time for general purposes but are not used for drinking water. Water quality has been tested. Water is supplied from rain collected by individuals.

There is no specific process for monitoring wildlife, but the island has a Director of Biosecurity. Studies are also conducted at various times by visiting scientists. Monitoring changes in the island's fauna and flora is difficult because of the island's exceptional remoteness and ruggedness – the very features that have contributed to preserving it thus far. Pitcairn is included in the Pacific Tsunami Monitoring System (PTMS).

## 4.7 FINANCE FOR THE ENVIRONMENT

There are no regular budgets for the environment, though project funds can be sought from the UK for specific initiatives.

The Strategic Development Plan foresees a total of NZ\$ 5,000 for the environmental protection and conservation to be allocated to environmental awareness since the other activities are to be supported by the involved institutions (the Pew Charitable Trusts, with regard to the establishment of the marine reserve; RSPB/OTEP/DFID/SPC regarding the safeguard environmental health of Henderson Island as World Heritage Site and RSPB/DFID/FCO regarding the eradication of rats).

In establishing a marine reserve there is an option for Pitcairn to generate revenue in the form of permit fees and other maintenance fees. This is common practice amongst marine reserves and national parks throughout the world, and indeed tourists expect to pay a premium to access such sites and are prepared to do so.

## 5 INTERNATIONAL COOPERATION

The British Government (DFID) has provided bilateral aid to Pitcairn since 2002/03. In 2010/11 it amounted to £ 2.4 million and in 2012/13 to £ 2.9 million (NZ\$ 5,864,740) to meet the reasonable needs of the Islanders. DFID has also agreed to finance a special project aimed at providing 24-hour power to the island. A project is underway to decide whether solar power is the most appropriate way of doing this. In addition, DFID has provided money in the 2012/13 budget to cover the cost of repairs following storm damage. The British Government may also make available additional funding, through the Governor and the Jubilee Programme, for special projects. The Royal Society for the Protection of Birds (RSPB) has carried out a rat eradication project on Henderson Island at a cost of £ 1.4 million. However it has been unsuccessful and a new attempt is planned for 2015. Under the Darwin Initiative (jointly between RSPB and Pitcairn) a total of £ 287,060 have been allocated to maintain, monitor and advance solutions to Invasive Alien Species for the Pitcairn Islands, particularly with reference to protecting endemic rare birds, whilst sharing experiences, capacity and best practice with other Pacific countries and territories (implementation period 2012-2016).

The 9<sup>th</sup> EDF allocation to Pitcairn amounts to € 2 million. Adding the transfers from previous EDFs, the indicative territorial allocation amounts to € 2.35 million. The total amount was granted to Pitcairn as sectorial budget support to infrastructure, and in particular: a breakwater and improved jetty; a road from the new landing to Tedsid road; and easier access to modern communications. These are essential

for economic development as it will help increase tourists landed and staying on the island. No additional funds have been allocated to Pitcairn following the mid-term review.

The territorial allocation provided for Pitcairn under the 10<sup>th</sup> EDF amounts to € 2.4 million earmarked to support the development of the tourism sector (including upgrading of public buildings) thus assisting in creating alternative and viable sources of income for Pitcairn and reducing the country dependence on externally provided budget support. For 11<sup>th</sup> EDF, about the same amount is allocated and Pitcairn is yet to propose on which sector it is going to be allocated.

Pitcairn Islanders are experiencing longer, more severe periods of drought and variability in rainfall. The effects can be devastating on many fronts, from crop production to drinking water consumption or for firefighting purposes. The EU is funding collaboration between the Secretariat of the Pacific Community<sup>12</sup> (SPC) and Pitcairn to monitor the weather on Pitcairn, and using this information to bolster the island's water. The SPC has provided a grant of € 300,000 to improve access to water for Pitcairn Islanders with a view to reducing water-borne public health risks and increasing conservation of water. The SPC also provides technical and administrative advice and support, on biosecurity<sup>13</sup> (including export and import compliance issues, assessment of risks in importation of live chickens for local egg production, capacity building and infrastructure support for bio-security staff), trade and fishing issues (including a framework for domestic fisheries development).

EU also funds the project INTEGRE (initiative of Pacific OCT for the regional management of the environment) which will finance a pilot project in Pitcairn<sup>14</sup> also implemented by SPC. The project will seek to improve waste management practices, combat soil erosion and to develop marine and fisheries legislation, sustainable fisheries and ecosystem management and create marine based ecotourism. Pitcairn is also part of the project "Supporting disaster risk reduction in Pacific overseas countries and territories".

Several scientific expeditions have taken place on the Pitcairn Islands, among them the Trinity College, Dublin, botanical expedition in 1997 and the Sir Peter Scott Commemorative Expedition in 1991-2, which documented the land flora and fauna of Henderson Island. More recently the Pew Charitable Trusts, the National Geographic Society and the community of Pitcairn Island expeditions (2012) which found species never reported before for the Pitcairn Islands, including algae, corals, reef fishes, and some deep sea sharks.

## 6 CONCLUSIONS ET RECOMMENDATIONS

Pitcairn is an extremely remote at about 2000km from Tahiti, and 5500km from New Zealand, and composed of four islands. Pitcairn Island, is inhabited with 52 persons. Henderson Island is a UNESCO World Heritage site since 1988, Oeno and Ducie are pristine atolls and are proposed to become Ramsar sites. Pitcairn wants to establish a no-take marine protected area in their entire EEZ except for the 12 nautical miles around Pitcairn Island. Major environmental challenges are invasive species and soil erosion. The territory depends on external aid from the UK, and receives EDF direct funding from the EU and is integrated in several regional initiatives implemented by the Secretariat of Pacific Committee, addressing water, waste, fisheries and disaster risk management.

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<sup>12</sup> <http://www.spc.int/images/stories/SPPU/pitcairn%20islands%20spc%20jcs%20final%20august%202008.pdf>

<sup>13</sup> <http://www.spc.int/lrd/focus-areas/biosecurity-and-trade/23/padil>

<sup>14</sup> Waiting for the reply of Pitcairn for more details.

| Goal   | Action   | Baseline situation  | Priority and time frame | Implementing entity(ies)                        | € and HR Needs | Risks and Assumptions | Possible € sources         |
|--|--|---|-------------------------|---|----------------|-----------------------|----------------------------|
| Control Invasive species, namely rose-apple and goat | Strengthen bio-security and reduce/eradicate invasive species in the islands   | Rats have been eradicated in Henderson<br>Some actions have been taken in Pitcairn<br>A goat eradication/management project will take place on Pitcairn in June 2014. |                         | Natural Resources Division and Pitcairn Council |                |                       | UK government, EU and NGOs |
|  | <b>Activities</b><br>Baseline survey information on plant species, invertebrates and marine species.<br>Mobilize funds to control and eradicate rose-apple.<br>Pass regulations on bio-security.<br>Pass regulations on tourism in order to protect the pristine environment that attracts tourists. |   |                         |   |                |                       |                            |

| Goal                 | Action  | Baseline situation                    | Priority and time frame | Implementing entity(ies)                                  | € and HR Needs | Risks and Assumptions | Possible € sources        |
|----------------------|---|---------------------------------------|-------------------------|---|----------------|-----------------------|---------------------------|
| Establishment of MPA | Establishment of MPA  | Proposal has been submitted to the UK |                         | Natural Resources Division and Pitcairn Council<br>UK FCO |                |                       | NGOs<br>UK gov<br>EU LIFE |
|                      | <b>Activities</b><br>Definition and implementation of plans to support the sustainable development and utilization of the marine and coastal resources. |                                       |                         |   |                |                       |                           |

| Goal                      | Action   | Baseline situation   | Priority and time frame | Implementing entity(ies)                        | € and HR Needs | Risks and Assumptions | Possible € sources         |
|---------------------------|--|--|-------------------------|---|----------------|-----------------------|----------------------------|
| Climate change adaptation | Prepare Pitcairn to face climate change          | Limited knowledge on climate change impacts on the islands |                         | Natural Resources Division and Pitcairn Council |                |                       | SOPAC<br>EU GCCA<br>UNFCCC |
|                           | <b>Activities</b>                                |  |                         |   |                |                       |                            |
|                           | Develop a CC National Adaptation Plan of Action. |  |                         |   |                |                       |                            |

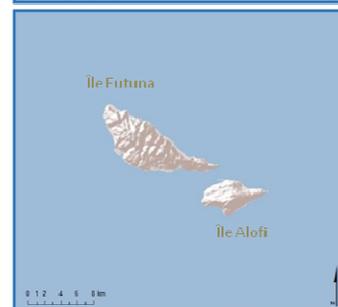
| Goal             | Action  | Baseline situation   | Priority and time frame | Implementing entity(ies)                           | € and HR Needs | Risks and Assumptions | Possible € sources |
|------------------|---|--|-------------------------|--|----------------|-----------------------|--------------------|
| Water management | Improve water resources management  | Much work has been completed on monitoring and on infrastructure acquisition |                         | Natural Resources Division and Operations Division |                |                       | SOPAC<br>EU        |
|                  | <b>Activities</b>   |  |                         |  |                |                       |                    |
|                  | Develop rain water harvesting infrastructure and household designs to facilitate maintenance. Establish cost-effective plan for future e.g. increased storage, well-drilling, desalination, etc. – based on agreed ToR. |  |                         |  |                |                       |                    |

| Goal                      | Action  | Baseline situation  | Priority and time frame | Implementing entity(ies)                 | € and HR Needs | Risks and Assumptions | Possible € sources  |
|---------------------------|---|---|-------------------------|--|----------------|-----------------------|---------------------|
| Increase renewable energy | Reduce dependency on fossil fuels and increase energy safety  | Project dependent of funding and project approval from DFID, which is yet to be confirmed |                         | Operations Division and Pitcairn Council |                |                       | DFID<br>SOPAC<br>EU |
|                           | <b>Activities</b>   |   |                         |  |                |                       |                     |
|                           | Study the best renewable energy alternatives for Pitcairn.<br>Technical analysis to the grid.<br>Install and commission renewable energy sources. |   |                         |  |                |                       |                     |

ANNEX D :  
WALLIS AND FUTUNA

# ENVIRONMENTAL PROFILE

## WALLIS AND FUTUNA



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## SUMMARY

Wallis & Futuna is the least developed of the overseas territories connected to France. These islands situated in the South Pacific are small and isolated and their natural environment is not only threatened by unsustainable subsistence farming and fishing traditions, but also by their geophysical positioning in a region prone to cyclones and to a rise in temperature and sea level. France, the local administration and the three chiefdoms have adopted a sustainable development plan.<sup>1</sup>

Since 2006, several projects and programs have been implemented: a *schéma pour l'aménagement et la gestion de l'eau* (SAGE; water planning and management model), the rehabilitation of the mangrove in the 2011-2015 IFRECOR action plan (*Initiative française pour les récifs coralliens*; French initiative for coral reefs) and a biodiversity inventory.

## 1 BACKGROUND INFORMATION

|                                 |  |
|---------------------------------|--|
| <b>Territory name</b>           | Wallis & Futuna  |
| <b>Region</b>                   | South Pacific  |
| <b>Area</b>                     | 142 km <sup>2</sup>  |
| <b>Maritime claims</b>          | EEZ : 262 500 km <sup>2</sup>  |
| <b>Population</b>               | 12 197 (data from July 2013). Density 86 inhab/km <sup>2</sup> . The population of the Wallis and Futuna islands is diminishing by +/- 10% every 5 years, since 2003. <sup>2</sup> |
| <b>GDP per capita</b>           | 10 100 € (2012)  |
| <b>Literacy rate</b>            | Not available  |
| <b>Unemployment rate</b>        | 12,2% (CIA, 2008)  |
| <b>% below the poverty line</b> | Not available  |

Wallis-and-Futuna is made up of 3 volcanic islands: Wallis (Uvea) and Futuna-Alofi. Surface area and characteristics:

|                           | <b>Wallis</b>  | <b>Futuna</b>                        | <b>Alofi</b>                         |
|---------------------------|--|--------------------------------------|--------------------------------------|
| <b>Area<sup>3</sup></b>   | 77,09 km <sup>2</sup>  | 45,97 km <sup>2</sup>                | 17,50 km <sup>2</sup>                |
| <b>Peak</b>               | 151 m  | 524 m                                | 417 m                                |
| <b>Access by sea</b>      | Yes: 200 km <sup>2</sup> lagoon, 4 passes in the coral barrier | Difficult, fringing reefs, no lagoon | Difficult, fringing reefs, no lagoon |
| <b>Hydrography, misc.</b> | Small temporary rivers   | Pronounced hydrographic network      | Uninhabited                          |

### Constitution<sup>4</sup>

In 1961, Wallis and Futuna becomes an Overseas Territory.<sup>5</sup> The members of the Territorial assembly are elected at the local level and appoint a President. The French state designates a Senior administrator who is ranked as Prefect since 1987 and who has an adjunct assigned to Futuna.<sup>6</sup> There are local chiefdoms in

1 Sustainable Development Strategy for the Wallis and Futuna islands Territory, 2002.

2 Census 07/2013 and <http://www.wallis-et-futuna.pref.gouv.fr/Dossiers/Articles-archives/Authentification-des-resultats-du-recensement-de-la-population-des-iles-Wallis-et-Futuna-2013>

3 Andrefouët S, Chagnaud N, Chauvin C, Kranenburg CJ, Atlas des récifs coralliens de France Outre-mer, Nouméa IRD Center, December 2008, 153 p.

4 Decree n°57-811 of 22 July 1957

5 Law n°61-8142 which defines its status.

6 <http://www.wallis-et-futuna.pref.gouv.fr/>

three regions: Uvéa, Sigave (to the west of Futuna) and Alo (on Alofi Island and on the western part of Futuna). The Territorial council is made of 3 chiefs and 3 deputies.

There are no communes on Wallis and Futuna, but instead three administrative districts. The districts correspond to the kingdoms (Uvea on Wallis, Alo and Sigave on Futuna).

The respective attributions of the Territorial assembly, the Territorial council and the Senior administrator are well defined: the executive organ is distinct from the local authority which is operated by the state representative (the Prefect) whereas the customary authority is involved in the management of territorial affairs; the territorial Assembly has limited powers (but passes the local authority's budget).<sup>7</sup>

### **Climate**

Temperatures are generally between 24°C and 31°C and the variability in sunlight is low year-long. Humidity goes from 82 % to 85 %. Annual rainfall is over 3 250 mm.

In 2012, hurricane Evan did a great deal of damage: 290 houses and 15 public structures were damaged on Wallis (90% of the electrical and 80% of the telephone network) and two people were injured.

Situated on the Pacific 'ring of fire', Futuna is at high risk for tsunamis.<sup>8</sup>

### **Economy**

Wallis and Futuna's economy has remained traditional and is scarcely monetized. Own consumption is therefore important, and represents 26% of all household expenses. Public spending, through wages paid, is also an economic driver, whereas the private sector remains weak. Exports are almost inexistent due to isolation from potential markets. Economic activity (excepting the public administration) is focused on agriculture, the construction industry and trade.<sup>9</sup>

The public administration plays a leading role in supporting the islands' economy: it is the source of nearly 75% of wages, and public demand represents by itself 54% of GDP. The private sector's contributions to wealth creation remain weak.

Due to the significance of imports in the local economy, trade is an important business sector. Tourism is almost inexistent despite the Territory's potential, this in particular because of the islands' isolation, the high price of transportation and the lack of infrastructure. The transportation sector (road, sea, air, port and airport services) mobilizes a lot of the workforce. The Territory is also deeply impacted by the costs and frequency of air and sea transportation.

The Territory's trade patterns is characterized by its low export numbers. In 2012, 20.5 tons of fisheries products were exported, for a total value of 13.3 million F CFP (approx. 111 000€).

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7 Overseas France Issuing Institute (IEOM), W&F report, 2012. <http://www.ieom.fr/wallis-et-futuna/publications-31/rapports-annuels-38/> and <http://www.wallis-et-futuna.pref.gouv.fr/Wallis-etFutuna/Organisation-institutionnelle>

8 <https://www.ird.fr/la-mediatheque/fiches-d-actualite-scientifique/334-wallis-et-futuna-quand-terre-et-mer-se-dechainent>

9 2012 IEOM report

## 2 BIOGEOGRAPHY, ENDEMISM AND IMPORTANCE FOR GLOBAL BIODIVERSITY

There is a strong contrast between Wallis on the one hand, whose environments were heavily affected by human activity, and Futuna and Alofi on the other hand, better preserved, with a richer biodiversity and concentrating most of the endemism. Here is a summary of species present on the Territory, according to the IUCN (International Union for Conservation of Nature).<sup>10</sup>

| Terrestrial biodiversity                    |              |   |       |  |
|---|--------------|---|-------|--|
| Flora                                       |              | Invertebrates   |       |  |
| Vascular plants                             |              | Molluscs  |       | Crustaceans                                    |
| 351 species (7 endemic) ;<br>338 introduced |              | 31 terrestrial and 3 freshwater<br>(11 endemic)                                   |       | 15 on Futuna ; 3 on<br>Wallis                  |
| Vertebrates                                 |              |   |       |  |
| Fish  | Amphibians   | Reptiles  | Birds | Mammals  |
| 16 of which 4<br>endemic                    | 1 introduced | 16 of which 2 new to science:<br>6 geckos, 8 skinks, 2 snakes<br>(one introduced) | 15    | 1 (Pacific dogfish + 11<br>introduced species) |

| Marine and coastal biodiversity          |                               |  |             |
|--|-------------------------------|--|-------------|
| Flora                                    | Invertebrates                 |  |             |
| Algae                                    | Corals                        | Molluscs                                       | Crustaceans |
| 220 species (Wallis)                     | 182 (Wallis)                  | Min. est. 600 (310 during a<br>census in 1982) | 258 species |
| Vertebrates                              |                               |  |             |
| Fish                                     | Reptiles                      | Birds  | Mammals     |
| 648 reef fish (Wallis) +<br>rays, sharks | 2 turtle species and 2 snakes | 10 nesting species                             | 10          |

## 3 STATE OF THE ENVIRONMENT

In the 2002 sustainable development plan (the most recent), Wallis and Futuna recognize that the local environment is subject to numerous threats leading to ecosystem degradation. Problems include: deforestation, farmland degradation, lagoon pollution (particularly on Wallis) and coral reef degradation.

### 3.1 MAIN CHALLENGES

The Environmental Vulnerability Index lists Wallis and Futuna as being Vulnerable. The three main problems identified for the Territory are its isolation, its low altitude and threatened species.<sup>11</sup>

#### Challenge 1 - Soil erosion and loss of fertility - Severe

Deforestation and traditional farming techniques contribute to the disappearance of topsoil. The islands' craggy and sloping terrain (particularly Futuna) is thereby exposed to soil erosion and fertility losses as nutritional substances and organic matter are leached out towards the sea.

<sup>10</sup> Biodiversité d'Outre-Mer, Roger Le Guen publishers, IUCN French committee, 2013, see also

[http://iucn.org/about/union/secretariat/offices/europe/activities/overseas/overseas\\_list/overseas\\_wallis.cfm](http://iucn.org/about/union/secretariat/offices/europe/activities/overseas/overseas_list/overseas_wallis.cfm) or

<http://data.iucn.org/dbtw-wpd/edocs/2010-064.pdf> or [http://www.uicn.fr/IMG/pdf/12\\_UICN\\_2003\\_Biodiv\\_OM\\_-\\_Wallis\\_et\\_Futuna.pdf](http://www.uicn.fr/IMG/pdf/12_UICN_2003_Biodiv_OM_-_Wallis_et_Futuna.pdf)

<sup>11</sup> <http://www.vulnerabilityindex.net/EVI%20Country%20Profiles/WF.pdf>

## **Challenge 2 - Pollution and lagoon sedimentation on Wallis - Severe**

There is absence of collective sanitation and leachate treatment. Sewage water discharge which contaminates freshwater reserves (freshwater lens on Wallis (groundwater) and protection perimeter for water extraction on Futuna) and the sea. Measures have been taken to improve pig-rearing techniques. However, pig droppings are still leaching into the lagoons, causing bacterial contamination and eutrophication. In addition, soil erosion increases the turbidity of lagoon water. Need for citizen actions: water conservation, recycling sewage water for other uses, limit pollution of drinking water reserves. Also there is the need for closure and rehabilitation of the island's illegal waste dump on the shoreline, to avoid rat proliferation and harmful runoffs towards the sea.

## **Challenge 3 - Coral reef degradation - Severe**

There is no recent data on coral in Wallis and Futuna. According to Reefbase<sup>12</sup>, certain coral reefs in Wallis and Futuna are still in a relatively good state but are subject to a number of stressors and are degrading rapidly. Fringing reefs around Futuna could be impacted by sediment deposits; they are in a degraded state. Futuna's coral was particularly damaged following the 1993 earthquake and more recently during hurricane Tomas in 2010. Despite the presence of monitoring stations since 1999, the French initiative for coral reefs (IFRECOR) notes that Wallis and Futuna's coral reefs are not well monitored enough. IFRECOR leads an action program since 2006.<sup>13</sup>

## **Challenge 4 - Climate change - Severe**

The climate change phenomenon represents a threat for Wallis and Futuna, namely:

- sea level rise: low-altitude coastal regions will experience increased erosion, temporary floods and in certain cases permanent flooding as well as damages to infrastructure (economic and social problem);
- increased frequency and intensity of cyclones which remove/destroy coral cover when waves strike coral reefs. Coral then breaks and crumbles; avalanches follow which affects coral down to the seabed.

Other environmental problems in Wallis and Futuna:

- Situated on the Pacific 'ring of fire', these islands are regularly shaken by earthquakes. According to the IRD, there is an important tidal wave, or tsunami, risk. On the 30th of September 2009, such a wave did indeed submerge Futuna's coast, leading to considerable damage but no victims.<sup>14</sup>
- Sand extraction: sand extraction on the beaches to be used as a building material damages the coastline and the beaches. This increases the risk of damage when cyclones or tsunamis hit the coast. This mainly impacts coastal ecosystems, in particular by leading to the loss of specific ecosystems.
- Overfishing and destructive fishing. Subsistence fishing leads to resource depletion. Fishing techniques involving explosives and venomous plants sometimes harm the environment.<sup>15</sup> Night time dive fishing is also disruptive.
- Poor waste management can be a risk, for water resources in particular (Wallis ground water). Wallis and Futuna's isolation makes waste disposal difficult.

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12 Spalding, M.D., C. Ravilious and E.P. Green , 2001 , World Atlas of Coral Reefs . Prepared at the UNEP World Conservation Monitoring Centre. University of California Press, Berkeley, USA. 421p.

13 <http://www.ifrecor.org/comite-local/wallis-et-futuna/plan-action>

14 <https://www.ird.fr/la-mediatheque/fiches-d-actualite-scientifique/334-wallis-et-futuna-quand-terre-et-mer-se-dechainent>

15 Chapter 11 on Status of Southeast and Central Pacific Coral Reefs in "Polynesia Mana Node: Cook Islands, French Polynesia, Kiribati, Niue, Tokelau, Tonga, Wallis et Futuna". By B. Salavt, in: Wilkinson, C. (publisher): "Status of Coral Reefs of the World: 2000", Global Coral Reef Monitoring Network GCRMN and Australian Institute of Marine Science. <http://www.icriforum.org/sites/default/files/gcrmn2000.pdf>

We have outlined the Territory's political and administrative organization at the beginning of this report. Here we will focus on institutions which are involved in the environment and sustainable development.

### 4.1 INSTITUTIONS

The environmental service<sup>16</sup> defines and proposes the necessary elements for the elaboration of a coherent environmental policy and hosts/coordinates protection, valorisation and treatment studies and works (pollution, risks, etc.). Its main mission is to insure and monitor management of the natural and built environment and the improvement of the livelihoods. The head of this service is a member of IFRECOR's standing committee and 'pilots' the TIT (*Thème d'intérêt transversal*; horizontally relevant theme) on adaptation to climate change and the sub-TIT climate change observatories on overseas reefs.<sup>17</sup> This committee develops the coral reefs strategy and national action plan, formulates recommendations and opinions on ways of assuring reef protection and sustainable management, fosters community awareness of coral reefs and integrated coastal area management.

The environmental service coordinates the *Schéma d'aménagement et de gestion de l'eau* (SAGE; Water management and planning model) since 2010: it organizes joint water resources management, involving all actors.

In 2013, the Territorial council on the environment and sustainable development was created by prefectural ordinance. This body, which brings together representatives of different institutions, analyses and emits opinion on any issue related to the environment, and promotes debate and information sharing in this field.

There is no research organization in the Territory. Research is led in partnership with different French research organizations. In this way, the IRD (*Institut de recherche pour le développement*; Institute for research on development), the University of New Caledonia, the MHNH (*Museum d'histoire naturelle du Havre*; Le Havre natural history museum) and the *Ecole pratique des hautes études* have been operating in the Territory and contributing to the acquisition of knowledge on its biodiversity. Other organizations occasionally take part, such as the CIRAD (*Centre de coopération internationale en recherche agronomique pour le développement*; International Agricultural Research Center for Development) and IFREMER (*Institut Français de Recherche pour l'Exploitation de la Mer*; French Research Institute for the Exploitation of the Sea).<sup>18</sup>

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16 <http://www.wallis-et-futuna.pref.gouv.fr/Presentation-des-services/Services-de-l-Etat-et-du-Territoire/Service-de-l-Environnement>

17 [http://www.ifrecor.org/sites/default/files/ged/ifrecor\\_bulletin\\_liaison\\_juin2009\\_n15\\_.pdf](http://www.ifrecor.org/sites/default/files/ged/ifrecor_bulletin_liaison_juin2009_n15_.pdf)

[http://www.ifrecor.org/sites/default/files/ged/130723\\_cr\\_runtech\\_ifrecor\\_paris\\_juin2013.pdf](http://www.ifrecor.org/sites/default/files/ged/130723_cr_runtech_ifrecor_paris_juin2013.pdf)

18 Biodiversité d'Outre-Mer, IUCS French committee, Roger Le Guen publishers, 2013.

Several departments address Wallis and Futuna's environmental questions:

|                       | <b>The Environmental Service</b>   | <b>The Rural and Fisheries Affairs Service<sup>19</sup></b>  | <b>Sitas (Service d'Inspection du Travail et des Affaires Sociales; Work and Social Affairs Service)<sup>20</sup></b>                          |
|-----------------------|--|--|--|
| <b>Personnel</b>      | 11 people  | 1 person <sup>21</sup>   |  |
| <b>Budget</b>         | Wages: 530 000 €<br>Investments: 560 000 € <sup>22</sup><br>Operational: 36 000 €  | Total: 25 000 €  |  |
| <b>Responsibility</b> | Prefect  | Prefect  |  |
| <b>Assignments</b>    | Define environmental constraints and criteria applicable to all territorial plans;<br>Propose legislation and other political instruments to promote sustainable use and preservation of natural resources;<br>Combat pollution, environmental hazards and nuisances;<br>Foster public awareness, circulate information, educate.<br>Conduct prevention, monitoring and control programs | Fishery activities regulation;<br>resource protection;<br>control sanitation facilities for livestock and food;<br>develop the rural economy and the fishing sector. | Professional training<br>Local job creation initiatives through construction and coastal management projects, which highlight the environment. |

Regarding natural hazards and disasters, the Prefect's Chief of staff is in charge of planning and acts as a liaison between all administrative levels (including traditional chiefdoms). He can initiate and coordinate emergency intervention plans in the event of an epidemic (bird flu, dengue fever, etc.) and rapid action plans for marine pollution, hurricanes or other emergencies.

## 4.2 POLICIES, STRATEGIES, PLANS, PROGRAMS

A 1997 decision of the Territorial assembly outlines priorities in environmental protection:<sup>23</sup>

- freshwater resources protection and coastal and surface waters quality improvement.
- supplying alternative building materials (rather than beach sand and coral rock).
- fish resources protection in the Wallis lagoon and Futuna's coast,
- waste management (household and industrial waste),
- protection of conservation hotspots.

Since 2006, a marine environment management plan was initiated and is on standby.<sup>24</sup> A water management plan and a local waste management plan are being prepared.<sup>25</sup> Several reports and studies have been performed to contribute to the development of new policies:

19 <http://www.wallis-et-futuna.pref.gouv.fr/Presentation-des-services/Services-de-l-Etat-et-du-Territoire/Service-des-Affaires-Rurales-et-de-la-Peche>

20 <http://www.wallis-et-futuna.pref.gouv.fr/Presentation-des-services/Services-de-l-Etat-et-du-Territoire/Service-de-l-Inspection-du-Travail-et-des-Affaires-Sociales>

21 to which are added agents for forests and animal husbandry.

22 Between 2010 and 2014, including 400 000 € for TEP Vertes (PV= (Tonne Equivalent Pétrole Valorisation des Energies Renouvelables Transfert d'Expérience et de Savoir-faire; Ton of Oil Equivalent Renewable Energy Valorization Transfer of Experience and Know-How) and 160 000€ for equipment to combat pollution.

23 n°15/AT/97

24 LittOcean working document for IFRECOR : Quelle gouvernance des récifs coralliens à Wallis et Futuna ? March 2013. Pdf downloadable on this page: <http://littoccean.fr/etudes-et-documents/littoccean/>

25 Information from M. Malau.

- Agriculture: Bastié Report of June 2013, on financial contributions to the multiannual sustainable development plan for the primary sector.<sup>26</sup>
- Climate change: Study of flood-prone areas on Wallis.<sup>27</sup>
- Water: Overview of water on Wallis (2012).

The following programs and projects are taking place on Wallis and Futuna.<sup>28</sup>

### **\*Water management**

The *Schéma d'aménagement et de gestion de l'eau* (SAGE; Water planning and management model), which the environmental service coordinates since 2010, has several objectives. The Wallis report, finalized in 2012, represents the first reference document of its kind. The preservation of the freshwater lens, the island's only water resource, requires further knowledge of the water table's mechanics. The hydrogeological study that was carried out allows an increased focus the on-the-ground protection actions. Preliminary work was presented to the Local water commission in November 2012. The next step is the constitution of a blueprint for water planning and management. SAGE's overview of Futuna starts in 2014, as well as studies which will allow to set extraction perimeters for Wallis.

### **\*Mangroves and marine resources**

The *Initiative Française pour les Récifs Coralliens* (IFRECOR; French initiative for coral reefs) 2011-2015 local action plan continues, in particular through mangrove rehabilitation. A reproduction zone and a reef species nursery, the latter essential to coral reef health. The mangrove, which represents 20 hectares on Wallis, is made of two indigenous species mangrove trees.<sup>29</sup> Along with this, the UNC (University of New Caledonia) monitors the evolution of the coast's headlands.

New initiatives are planned for 2014:

- Lagoon sea grass planting and monitoring on Wallis;
- Implementation of a *ciguatera* surveillance network<sup>30</sup>, a special indicator of reef health.

Rehabilitation actions are implemented by village associations with the technical support of the Environmental service. Plants from local nurseries are planted on the coast to support rehabilitation and maintenance of the mangrove belt. A report on these operations, made in 2013, shows that approximately 3ha were replanted over 6km, and 8km of coast were cleaned. Holothurian commercialization, which began in 2011, continues with a fixed quota for 2012 of 6.8 tons of dried product of which 4.1 tons were exported in 2013. The Territorial environmental service monitors stocks and controls export products. It also controls the trochus shell trade, the export quota being fixed at 34 tons per year.

Similarly, a study aiming at setting up a management plan on women's income generating with shells of artisanal value is being considered.

### **\*Biodiversity**

The Wallis and Futuna biodiversity inventory is progressively being completed. The National Natural History Museum has identified the only amphibian species present on Wallis: the *Litoria aurea* frog, from Australia. No species of amphibians were identified on Futuna. A herpetological inventory was made by the same organization in 2013.

26 See [http://www.ieom.fr/IMG/pdf/let\\_editnat0114.pdf](http://www.ieom.fr/IMG/pdf/let_editnat0114.pdf) Following this report, market gardeners within the Farmers Group received 35 000 € in funding, approximately 4,2 million F CFP, for "the mechanization of professional produce farming" through the acquisition of new equipment.

27 2013, S.Bantos, M.Allenbach, C.Manchel: Pour une intégration optimale des sociétés locales dans la gestion adaptative du domaine littoral a la montée du niveau marin: le cas de Wallis et Futuna. Sorbonne and the University of New Caledonia. See presentation on: [http://wwwz.ifremer.fr/biarritz\\_2011.%20/Le-colloque/Les-sessions-scientifiques/4-Gestion-integree-de-la-zone-cotiere-et-de-l-Ocean/4.3.-Vulnerability-adaptation-and-management-of-coastal-areas](http://wwwz.ifremer.fr/biarritz_2011.%20/Le-colloque/Les-sessions-scientifiques/4-Gestion-integree-de-la-zone-cotiere-et-de-l-Ocean/4.3.-Vulnerability-adaptation-and-management-of-coastal-areas)

28 In the 2012 IEOM (Overseas France Issuing Institute) annual report, section 5 : <http://www.ieom.fr/wallis-et-futuna/publications-31/rapports-annuels-38/2012-1331.html>

29 *Rhizophora samoensis* and *Bruguieragymnorhiza*

30 food poisoning from fish whose flesh was contaminated by the benthic microalgae *Gambierdiscus toxicus* which is present in coral reefs.

Invasive species control and combating actions continue, in particular for the black rat (*Rattus rattus*) on Futuna and the giant mimosa (*Mimosa diplotricha*) on Wallis. Combating the black rat is also necessary from a sanitary perspective due to the risk of leptospirosis. Also, the entomological monitoring of mosquitoes continues on both islands in order to limit the health hazards for the population. Two joint projects with SPREP will begin in 2014: one for the elaboration of a biodiversity strategy and the other on invasive exotic species (IES).

**\*Agriculture and fishing<sup>31</sup>**

On Wallis and Futuna, agriculture, mainly traditional, plays both an important role and is poorly integrated in the market economy. It is essentially meant to ensure household needs, both for own consumption and "custom". There have been efforts to develop and structure agriculture, livestock and fishing sectors to increase the sectors participation in local economy.

The rural and fishing affairs service coordinates an OGAF program that promotes rotating contained pig rearing areas, thereby integrating plant and animal production. Organic farming techniques and green tourism are also encouraged. For the 2012-2014 cycle, this represents a 700 000€ package, including 170 000€ for animal husbandry and 60 000€ for rural services. This program is also expanding coastal fishing to alleviate the strain on the lagoon (80 000€).

**\*Other policies, strategies, plans, programs**

Wallis and Futuna presented the following report to IFRECOR's standing committee (in 2009) on the actions carried out: <sup>32</sup>

- actions against pollution, focusing on waste, with the planning of the Nanu'u landfill and the installation of anchorages in Gahi;
- environmental awareness and education actions led jointly with schools and associations;
- work (through CRISP) on the PGEM project (*Plan de gestion des espaces maritimes*; Maritime Spaces Management Plan) and the identification of marine protected areas within Wallis' reef and lagoon system.

**4.3 LEGAL FRAMEWORK AND LAW ENFORCEMENT**

The applicable legal instruments are the following:

| Legal instrument   | Comments   |
|--|--|
| Environmental Code<br>Resolution n°31/AT/2006 of 02 October 2006 made binding by order n°2007-309 modified by resolution n°09 bis/AT-2007 of 26 July 2007 made binding by order n°2007-310 | The Wallis and Futuna Territory has its own Environmental Code since 2006. This code stresses that "customary authority, the sole authority as concerns property rights on the Wallis and Futuna islands' territory, must be consulted on all issues involving the environment and in particular those meant to ensure its protection. The customary authorities' role, as concerns the use of terrestrial and lagoon areas, is therefore preeminent. The complete code is available at the following address: <a href="http://orioai.univ-nc.nc/nuxeo/site/esupversions/90404d42-b60a-48b8-bd10-9f17653ec1fb">http://orioai.univ-nc.nc/nuxeo/site/esupversions/90404d42-b60a-48b8-bd10-9f17653ec1fb</a> |
| Resolution n°35/AT/2003 on environmental impact assessments (EIA).   | An EIA is necessary during infrastructure planning and construction. Several EIA have already been made: for Mata'Utu's commercial port, Halalo's fishing port, Futuna's airport, etc.   |

31 2012 IEOM report- <http://www.ieom.fr/wallis-et-futuna/publications-31/rapports-annuels-38/2012-1331.html>

32 <http://www.ifrecor.org/contenu/bulletin-liaison-n%C2%B015-juin-2009>

| Legal instrument   | Comments   |
|--|--|
| Resolution n°31/AT/2003 on regulations relating to the extraction of marine or terrestrial organisms used for research or export.  | This legal text establishes quotas for certain overexploited resources (for example shells) and is stricter than CITES.  |
| Order n°95-244 on imports and Order n°95-245 listing prohibited imports (or in need of authorization)  | This text aims to avoid the importation of harmful organisms and plant and animal diseases. If goods are not secure, they can be destroyed on arrival, or their importation can be prohibited. |
| Order n°2008/003 regulating water for human consumption in the Wallis and Futuna islands' Territory (03/01/2008)   | 'Water and wastewater' field   |
| Order n° 2012-002 outlining diesel and lubricating oil storage conditions (03/01/1012)   | 'Hazardous substances (chemical)' field  |
| Order n°2013-520 establishing the procedures of assess of public to information and public participation on development projects directly affecting Wallis and Futuna's environment (17/10/2013) | 'Environmental responsibility' field   |
| See environmental code   | Waste (oil, hospital, construction and demolition)<br>Landfills  |
| List of protected animal and plant species (in progress)   | 'Biodiversity' field   |

#### International agreements

- Two regional agreements apply to the Territory: the Apia Convention (Convention on the protection of the South Pacific, 12 June 1976) and the Nouméa Convention (Convention on the protection of natural resources and the environment in the South Pacific, 25 November 1986).
- All seven of Wallis' lakes (Kikila, Lalolalo, Lanutavake, Lanutuli, Alofivai, Lano and Lanumaha) have been added to the list of wetlands likely to be named under the Ramsar convention.
- All tree ferns and orchids are listed in annex II of the Washington Convention (CITES). The green sea turtle is listed in annex I, all giant clams in annex II and some marine mammals as well as rays and sharks in one of the annexes.

Agreements signed by France also apply to Wallis and Futuna, among them: on biodiversity, on climate change, migratory species (Bonn), waste (Basel) etc.

Wallis and Futuna also uses the EU Water Framework Directive as a basis for the monitoring of coastal waters quality.

#### 4.4 ENVIRONMENTAL AWARENESS

During meetings where members of the Territorial assembly and the representatives of the traditional chiefdoms work together, environmental information is always available.

Several actions were led as exhibits, informational plaques, school presentations, and scientific conferences by experts in several fields.

The following achievements can also be mentioned:

- articles in local media on the preservation of coral reefs and mangroves;
- agricultural extension to promote alternatives to pesticides;
- a website, where all the relevant information on the environment will be available, is currently being made;
- creation or support for underwater or botanical trails.

Also an environmental education kit for teachers has been produced, and a training course for educator-guides and certified agents has been programmed.

The "Maui Lelei" voluntary association works on the environment since the 9<sup>th</sup> EDF's regional programs.

## 4.5 ENVIRONMENTAL FUNDING

A tax for environmental protection is planned for in the Environmental code (Article E. 142-1). At a rate of 10%, it is applied to imported batteries, storage cells, pesticides and heavy oils.

| <b>Taxes /subsidies</b> | <b>Revenue/cost</b> | <b>Application</b>  |
|-------------------------|---------------------|---|
| Tax on toxic products   | 41 900€             | Used to collect, export and recycle toxic products (oil, pesticides, batteries, etc.) |
| Waste tax               | 75 400€             | Tax on alcoholic drinks sold in stores, used for household waste collection.          |
| Subsidies for pig farms |                     | Subsidies given to pig owners to avoid them roaming freely and soil pollution.        |

To encourage waste sorting through aluminium can recycling, the environmental service is signing agreements with local associations that collect the cans. They are weighed and bought by the administration for 838 €/ton with a maximum allotted budget of 3 000 €/year.

Tax exemption per agreement on low energy light bulbs.

The environmental service has noted that access to funding is difficult but plans and strategies continue to be drafted and should enable the identification of priority actions.

## 5 COOPERATION

### 5.1 COOPERATION WITH FRANCE

There are few fiscal resources relative to costs, as 80% of the budget comes from government transfers, and the remaining from customs duties. Public transfers coming from continental France are therefore still decisive for the Territory. In 2010, total state interventions reached 104 million €. <sup>33</sup>

The 2012-2016 development contract signed on 9 March 2012 between the state and the Wallis and Futuna islands Territory provides 41.8 million € in aid from the state centering on two areas: A – Health, Education, Employment, Sports and Culture and B – Sustainable spatial and environmental planning. <sup>34</sup> In this contract, 2.62 million € were planned for renewable energy actions, and to continue actions on biodiversity and on combating pollution.

The Wallis and Futuna IFRECOR is planning a local coral reef plan for 30 000 €/year, jointly funded by the state and the territory. For water management, SAGE provides for a 60 000 € state/territory joint funding.

In the previous planning contract (2007-2011), the environmental section reached 525 000 € to expand the means of the Environmental Service (laboratory and boats for work at sea), biodiversity (inventories to increase knowledge on invasive species), and coastal protection (studies and interventions).

<sup>33</sup> <http://www.wallis-et-futuna.pref.gouv.fr/Wallis-et-Futuna/Presentation-economique>

<sup>34</sup> <http://www.wallis-et-futuna.pref.gouv.fr/Wallis-et-Futuna/Presentation-economique>

## 5.2 WITH THE EUROPEAN UNION<sup>35</sup>

|                   | 8 <sup>th</sup> EDF    | 9 <sup>th</sup> territorial EDF   | 10 <sup>th</sup> territorial EDF   |
|-------------------|------------------------|---|--|
| <b>Budget</b>     | 730 000€               | 1,947 billion F CFP (~16 ,3 million €)  | 1,97 billion F CFP (~16.5 million €)   |
| <b>Components</b> | Reforestation projects | <ul style="list-style-type: none"> <li>- Extension of the Mata'Utu commercial port - budget spent, expected end date: November 2013</li> <li>- Construction and renovation of school infrastructure - ended late 2012</li> <li>- Implementation of an <i>unité technique de gestion</i> (UTG; technical management unit), named "Cellule Europe" evaluations, audits and unforeseen issues</li> </ul> | <ul style="list-style-type: none"> <li>- Reconstruction of the Leava dock - 93% of the budget, work beginning in 2014</li> <li>- Elaboration of a general development strategy for the Territory</li> <li>- Hiring experts to assist the public policy and development coordination service and the maritime affairs service.</li> </ul> |

### \*Renewable energy

A major program has been in place since 2006 for renewable energy: TEP VERTES (*Tonne Equivalent Pétrole Valorisation des Energies Renouvelables Transfert d'Expérience et de Savoir-faire*; Ton of Oil Equivalent Renewable Energy Valorisation Transfer of Experience and Know-How), jointly funded by the European Union (9th EDF) and the New Caledonia, French Polynesia and Wallis and Futuna territories for an overall sum of 10.3 million €<sup>36</sup> including 1.15 million € allocated to Wallis and Futuna.

### \*Integrated marine and terrestrial environments management

The INTEGRE program (*Initiative des Territoires pour la gestion régionale de l'environnement dans les Pays et Territoires d'outre-mer du Pacifique*; Territories' initiative for regional environmental management in Pacific overseas Countries and Territories), funded by the 10th EDF for 12 million € and an estimated period of 4 years. Its main goal is to promote the integrated management of marine and terrestrial environments and to lastingly promote the French Pacific overseas Countries and Territories' natural resources. Operations are planned on nine pilot sites, including three in French Polynesia, three in New Caledonia, two on Wallis and Futuna and one on Pitcairn. The project's Steering committee first met on 18 September 2013 and approved the nine suggested pilot sites. The share put aside for W&F's projects represents 858 000€.<sup>37</sup>

## 5.3 OTHER INTERNATIONAL COOPERATION AND MULTILATERAL ENVIRONMENTAL AGREEMENTS (MEA)

Wallis and Futuna comply with France on multilateral environmental agreements. The territory has developed a 2006-2010 Action plan for biodiversity, as requested by the French government and in accordance with the Convention on biodiversity. The French state has drafted the 2012-2020 NBS - National Biodiversity Strategy. Local plans are readjusted according to this phase's periodicity.

Since 2006 the following international actions took place:

<sup>35</sup> 2012 IEOM report

<sup>36</sup> [http://ec.europa.eu/development/icenter/repository/annex4\\_tep\\_vertes\\_fr.ppt](http://ec.europa.eu/development/icenter/repository/annex4_tep_vertes_fr.ppt)

<sup>37</sup> <http://web.presidence.pf/index.php/pr-presidence/547-reunion-du-comite-de-pilotage-du-programme-integre>

With the SPC (Secretariat of the Pacific Community), Wallis and Futuna drafted a SPC-Wallis-and-Futuna joint strategy begun in January 2009. It identifies Wallis and Futuna's developmental priorities and assistance activities to be implemented by the SPC during the 2009-2013 period.<sup>38</sup>

The INTEGRE program is also implemented with the SPC (see above).

Wallis and Futuna collaborate with the SPREP (Secretariat of the Pacific Regional Environment Program) on the regional plan for nature conservation, waste and climate change.

According to the environmental service, neighbouring countries being predominantly English-speaking, Wallis and Futuna's regional and international cooperation sometimes faces language barriers.

## 6 CONCLUSIONS AND RECOMMENDATIONS

Wallis and Futuna is the least developed of France's overseas territories. Due in part to geographical factors and also to customs and certain local practices, there has been environmental degradation: deforestation, overfishing and pollution of Wallis' lagoon and coral reef and beach destruction. The territories are clearly confronting this problem and have implemented administrative structures supported by qualified individuals, allocated budgets and adopted some legislation (e.g. EIA).

In particular, the adoption of a sustainable development plan in 2002 at all administrative levels was a real accomplishment given the complexity of the political structure: 1) the French state through its Prefect and several services; 2) the Territorial assembly and 3) the traditional chiefdoms in three regions.

The main challenges are nature conservation and climate change, as coastal zones are receding due to erosion and coastal alteration by the population, as well as solid and liquid waste management.

There is potential for the promotion of solar and wind energy (individual and semi-collective installations). As for hydroelectricity: the renovation and reactivation of the Vainifao power plant on Futuna is in progress, at a cost of 200 000€. Other hydroelectric projects are planned, for a total sum of 800 000€.

Wallis and Futuna's environmental service notes:

| <b>Problems</b>                     | <b>Current situation</b>   | <b>Actions implemented since 2006</b>                  |
|-------------------------------------|--|--|
| Strain on habitat and biodiversity  | Difficult to control   | Regulation, protection and management program          |
| Invasive species                    | Operation in progress  | Plant and animal IES                                   |
| Climate change / Sea level rise     | Shoreline receding, temporary immersion of low-lying cultivation areas | Protection installations, studies                      |
| Natural and environmental disasters |  | ORSEC plan   |
| Waste management                    | Rise in waste  | Plans, recycling and recovery sectors being researched |

38 2009 report: <http://www.spc.int/sppu/images/JCS/jcs%202009%20bilan%20interm%E9diaire%20wallis%20et%20futuna.pdf>

| Goal                      | Action   | Current situation   | Priority and timeframe | Responsible bodies    | € and HR needs | Risks and assumptions | Possible funding sources |
|---------------------------|--|---|------------------------|-----------------------|----------------|-----------------------|--------------------------|
| Inform, train and educate | Increase awareness of environmental issues   | Several exhibits, informational plaques, school presentations, scientific conventions by experts in several fields. An environmental education kit for teachers was made, and an educator-guide and sworn agent training course is planned. |                        | Environmental service |                |                       |                          |
|                           | <b>Activities</b> <ul style="list-style-type: none"> <li>- Implement an internet database for teachers</li> <li>- Develop an informational television and radio campaign for the population</li> <li>- Develop outreach actions</li> </ul> |   |                        |                       |                |                       |                          |

| Goal  | Action  | Current situation  | Priority and timeframe | Responsible bodies   | € and HR needs | Risks and assumptions | Possible funding sources |
|---|---|--|------------------------|--|----------------|-----------------------|--------------------------|
| Sustainable management, biodiversity conservation, ecosystem services | Expand current efforts  | -Biodiversity inventory in progress<br>-Combating invasive species, measures taking place<br>-A 2011-2015 local action plan by the <i>Initiative Française pour les Récifs Coralliens</i> (IFRECOR; French initiative for coral reefs) is in progress<br>-Rehabilitation actions are implemented by village associations with the technical support of the Environmental service |                        | Environmental service<br>The Rural and Fisheries Affairs service |                |                       |                          |
|   | <b>Activities</b> <ul style="list-style-type: none"> <li>- Finalize the biodiversity inventory (in particular EEZ and EEZ shoals' biodiversity for management and conservation purposes)</li> <li>- Develop marine protected areas for the sustainable management of fish stocks</li> <li>- Continuation and intensification of invasive exotic species control and monitoring</li> <li>- Promote social, legal and economic sciences integration in tackling reef issues</li> <li>- Continue coral reef surveillance network activities</li> </ul> |  |                        |  |                |                       |                          |

| Goal                          | Action   | Current situation   | Priority and timeframe | Responsible bodies                      | € and HR needs | Risks and assumptions | Possible funding sources |
|-------------------------------|--|---|------------------------|---|----------------|-----------------------|--------------------------|
| Sustainable forest management | Reduce forest fragmentation, promote its extension and sustainable management  | Reforestation projects have been funded in the past (8th EDF) |                        | The Rural and Fisheries Affairs service |                |                       |                          |
|                               | <b>Activities</b> <ul style="list-style-type: none"> <li>- Strengthen plantations with local species, in particular to protect soil from erosion and improve water capture</li> <li>- Develop a forest strategy including existing areas and reforestation or forest extension zones</li> <li>- Develop a forest inventory, on which to develop sustainable forest management action plans</li> <li>- Establish a territory forest reserve</li> <li>- Establish several types of forests for different operators, including communal forests</li> <li>- Promote joint management of forests</li> <li>- Expand surveillance services</li> </ul> |   |                        |   |                |                       |                          |

| Goal                                | Action   | Current situation | Priority and timeframe | Responsible bodies | € and HR needs | Risks and assumptions | Possible funding sources |
|-------------------------------------|--|-------------------|------------------------|--------------------|----------------|-----------------------|--------------------------|
| Integrated coastal zones management | Integrated coastal zones management (see INTEGRÉ topics)   |                   |                        |                    |                |                       |                          |
|                                     | <b>Activities</b> <ul style="list-style-type: none"> <li>- Engage different actors (environment, territorial planning, fishing, police, defence, ports, tourism, rural development, local authorities)</li> <li>- Develop a study on economic potential and environmental risks in the coastal zone including climate change and the legal framework</li> <li>- Conduct a study on proper coral reef management and protection and include it in coastal area management plans.</li> <li>- Organize workshops to discuss options</li> <li>- Develop the coastal zones integrated management plan</li> <li>- Draft necessary legislation for the plan's implementation</li> <li>- Develop sustainable ecotourism including local communities</li> </ul> |                   |                        |                    |                |                       |                          |

| Goal             | Action   | Current situation | Priority and timeframe | Responsible bodies | € and HR needs | Risks and assumptions | Possible funding sources |
|------------------|--|-------------------|------------------------|--------------------|----------------|-----------------------|--------------------------|
| Maritime affairs | Expand sustainable sea management and the blue economy   |                   |                        |                    |                |                       |                          |
|                  | <b>Activities</b> <ul style="list-style-type: none"> <li>- Finalize the <i>plans de gestion des espaces maritimes</i> (PGEM; Maritime Spaces Management Plans), in particular by clarifying lagoon management responsibilities.</li> <li>- Develop research on energy and biotechnology.</li> <li>- Develop income-generating activities related to the sea: consider potential commercial activities for certain species (ex: holothurians and trochus), evaluate commercial fish stocks, the food industry, other products.</li> <li>- services (ex. boat repair, electronics, spare parts, cold, etc.).</li> <li>- Expand the private sector's presence in these activities.</li> </ul> |                   |                        |                    |                |                       |                          |

| Goal                         | Action  | Current situation   | Priority and timeframe | Responsible bodies | € and HR needs | Risks and assumptions | Possible funding sources |
|------------------------------|---|---|------------------------|--------------------|----------------|-----------------------|--------------------------|
| Sustainable water management | Diminish drinking water losses, improve its quality.<br>Reduce negative impact of sewage water.   | SAGE project in progress.<br>Drinking water system planned for Futuna in the 2012-2014 development contract.<br>Significant muddy water infiltration in the lagoon. |                        |                    |                |                       |                          |
|                              | <b>Activities</b> <ul style="list-style-type: none"> <li>- Implementation of the chlorination process for water extraction.</li> <li>- Generalize rainwater collection for agriculture and several household uses (reduction in water demand from the network and of bills).</li> <li>- Additional funding for the SAGE project's treatment process.</li> <li>- Explore solutions to reduce muddy water infiltration into the lagoon (routing, extraction and filtration, etc.) and mobilize funds for its implementation.</li> <li>- Continue the anchorage installation program.</li> </ul> |   |                        |                    |                |                       |                          |

| Goal             | Action   | Current situation   | Priority and timeframe | Responsible bodies | € and HR needs | Risks and assumptions | Possible funding sources |
|------------------|--|---|------------------------|--------------------|----------------|-----------------------|--------------------------|
| Waste management | Improve current management   | Two waste management plans in progress.<br>Project for the organization of waste management and transport (Pacific Fund). |                        |                    |                |                       |                          |
|                  | <b>Activities</b><br>- Improve enforcement of pollution and degradation regulations.<br>- Continue the anchorage installation program.<br>- Reduce muddy water infiltration into the lagoon. |   |                        |                    |                |                       |                          |

| Goal           | Action  | Current situation  | Priority and timeframe | Responsible bodies | € and HR needs | Risks and assumptions | Possible funding sources |
|----------------|---|--|------------------------|--------------------|----------------|-----------------------|--------------------------|
| Climate change | Cartography and risk modelling  | Wallis and Futuna collaborate with the SPREP (Secretariat of the Pacific Regional Environment Program) on the regional plan for nature conservation, waste and climate change. |                        |                    |                |                       |                          |
|                | <b>Activities</b><br>- Study the impact of CC on W&F from a scientific point of view, establish scenarios, expand the climate monitoring network - mobilize technical and financial assistance.<br>- Initiate a process of reflection on energy, including electricity and transport, which should result in an energy strategy, promoting renewable energy and energy efficiency.<br>- Develop a national adaptation plan and a CC mitigation plan - with a funding mobilization strategy (external and internal (e.g. taxes or subsidies), funding allocations for certain themes);<br>- Engage in the development of renewable energy at the regional level;<br>- Participate in the regional strategy to create development resilient to climate and natural disasters. |  |                        |                    |                |                       |                          |