

Seychelles

Total population (July 2000 estimate): 79,330

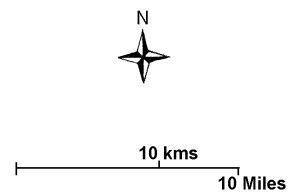
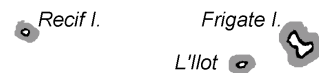
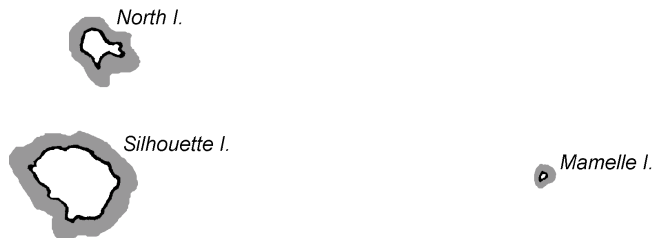
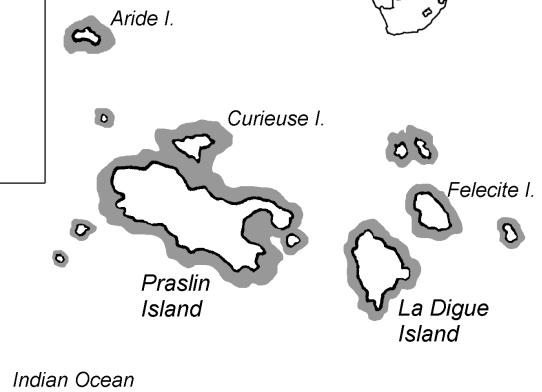
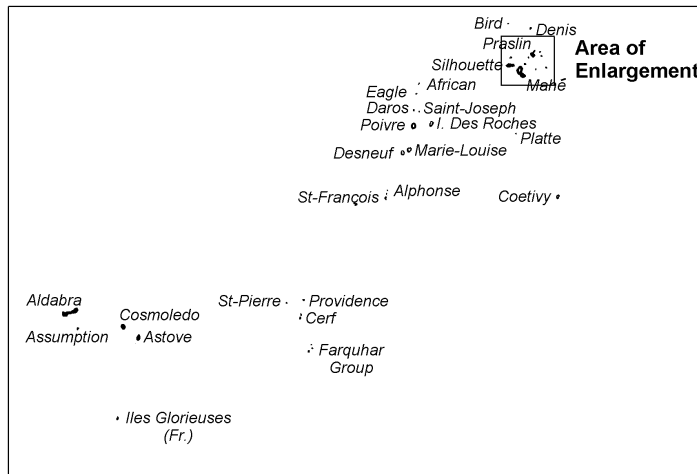
Area: 455 km²

Annual population growth rate (2000): 0.49%

Life expectancy at birth (1998): 71.0 years

People not expected to survive to age 40 (1998): data not available

GDP per capita (1998): US \$10,600



The Seychelles is an island state in the western Indian Ocean, approximately 1,600 km east of Kenya and Tanzania. The Seychelles consists of more than 90 widely scattered islands, most of which are uninhabited. The main island is Mahe with mountains reaching up to 1,000 m. The other main islands are Praslin and La Digue.

The economy is largely based on tourism (25% of GDP) and processing of coconut and vanilla, as well as fishing.

The agricultural sector (4% of GDP, 6% of labour) of the Seychelles is dominated by coconut, vanilla and cinnamon plantations. Vegetables are grown on brown soils for local consumption. The soil productivity of the Seychelles shows a strong relationship with the underlying geology. In general, the soils developed on calcareous rocks are more productive than the soils overlying granitic rocks.

The mineral sector is very small. Apart from occasional production of guano there is some extraction of granitic dimension stone. Polymetallic nodules are known to occur on the deep ocean floor near the Admirante Islands.

Geological outline

The principal islands of the Seychelles, the Mahe and Praslin-La Digue islands, are made up mainly of Neoproterozoic (Pan-African) granites and hornblende granites, intruded by dolerites and olivine dolerites. The continental crust of the Seychelles is widely regarded as a continental fragment left behind when the continent of Gondwana broke up and the Indian Ocean widened.

Most of the smaller islands in the Seychelles are made up of coral atolls or calcareous sands built on reefs.

AGROMINERALS

Phosphates

Guano/guano-derived phosphates

The main agromineral resources of the Seychelles are guano deposits and phosphatic sandstones. Most of these deposits are found on coral atolls and reefs, where sooty tern (*Sterna fuscata*) and boobies (*Sula dactylarta melanops*) live. Hutchinson (1950) reports that in 1931, some 5 million pairs of terns populated the island of Desneufs and the excrement left behind by these seabird colonies formed guano deposits. Leaching of the guano converted the underlying sands to phosphatic sandstones and phosphatized reef rock.

According to Baker (1963), most of the guano is composed of hydroxy-apatite with minor ammonium phosphates and organic compounds derived from the fish diet of the birds. The P₂O₅ content of the guano ranges from 15-35% and the N content varies from 0.2-1.6%.

Most of the easily extractable guano has been exported over the last 90 years, mainly to Mauritius as fertilizer for the sugar estates, with smaller amounts being shipped to Reunion and New Zealand. Guano exports started in 1895. Until 1960 a total of approximately 700,000 tonnes of guano were exported, with approximately 200,000 tonnes remaining, mainly on the island of Assumption (Baker 1963).

Braithwaite (1980) describes oolitic phosphorites, mainly of hydroxy-fluor-apatite composition, resting on solution-eroded limestone surfaces on the island of Esprit, which is part of Aldabra Island. The formation

of the oolitic phosphates is related to relocation of phosphates and deposition in caves between 170,000 and 230,000 years ago (Braithwaite 1980).

Officially, output of guano from the Seychelles ceased in the mid-1980s. However, a 5,000 tonne per year production capacity remains and guano is mined unofficially on an occasional basis.

Other agrominerals

Coral limestones, calcareous sands and conglomerates are currently being used for building purposes. They are not used at present for agricultural or horticultural applications.

Agromineral potential

The guano and guano-derived phosphate deposits of the Seychelles have little potential as an export commodity due to their limited reserves. Yet, the potential for using small, locally available guano resources for small-scale agricultural, horticultural and vegetable production on the soils of the Seychelles, specifically on granitic soils, should be considered. It is important, however, to address environmental concerns related to mining of the guano.

References:

- Baker BH. 1963. Geology and mineral resources of the Seychelles Archipelago. Geol. Surv. Kenya, Mem.3, 140pp.
- Braithwaite CJR 1980. The petrology of oolitic phosphorites from Esprit (Aldabra), western Indian Ocean. Philos. Trans. R. Soc. London, Ser. B, 288:511-540.
- Hutchinson GE 1950. Survey of existing knowledge of biogeochemistry - The geochemistry of vertebrae excretion. Bull. Am. Mus. Nat. History, 96, 554 pp.