

7.3 Congo



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Capital city	Brazzaville
Population (2005 est.)	58,700,000 (3.2% growth)
GDP per capita (USD 2005 est.)	\$714
Life expectancy at birth (2005 est.)	45.8 years (male - 44.4, female - 47.1)
Land and water area	2,345,410 km ² (land - 2 267 600, water - 77 810)
Length of coastline	37 km
Mangrove area (2005 est.)	8 000 ha
Marine protected areas (2007 est.)	None recorded
Capture fisheries prod. (2006 est.)	59,485 metric tones
Aquaculture fisheries prod. 2006 est.)	21 metric tones

Geographic Location: Congo is a coastal country located between 3°5N and 5° latitude. It bordered by the Congo river and its tributaries to the north of Bangui and is bordered to the north by Cameroon and Central Africa, to the west by Gabon and the Atlantic ocean and to the south by Angola.

Rivers on the Country's Coast: Mayombe, Loémé, Noumbi, Ngongo, and Kouilou.

Coastal Climate: The climate in the region is characterized by (Vennetier, 1968): a hot and dry season (May/June to September) and the rainy season (October to April/May). The average annual temperatures vary between 24 - 26°C (Heecketsweiler et Mokoko Ikonga, 1991 en citant Leroux, 1989)

Coastal Geomorphology: Largely situated between latitudes 4° and 5° south and longitudes 11° and 12°2' east, the coastal zone is found in Kouilou province located in south west Congo and is about 13,650 kilometres, about 4% of the national territory (Vennetier, 1968).

The coastal band has four sections i.e. Massabi (Cabinda) to Pointe Mvassa, Pointe Mvassa to Pointe-Noire; from Pointe-Noire to Pointe-

Indienne from Pointe-Indienne to Pointe-Kounda and is characterized by an altitude of about 5 to 30 metres except in the areas closest to the beach where it is 130 metres.

Coastal Currents and Tides: At Pointe-Noire, the current generally flows north-west to north-north-west. Being at the coast, due to the wind, the current is irregular and depending on the season, the speed of the surface currents is 26 cm/s. During the Great Dry Season (GSC), the speed increases (65% north-west and 35% south-east). During the Great Cold Season (GSF), the speed is much weaker.

Coastal Observations: The Centre d'Assistance Météorologique aux Activités Maritimes et Connexes (CAMAN) is the institution charged with maritime navigation, fishing, maritime and related activities as well as meteorological and oceanographic information and products. The installation of the new KAELESTO tide gauge under the IODE-



Figure 1. Tide gauge installed by ODINAFRICA at Pointe Noire port.

ODINAFRICA programme at the Port of Pointe Noire was undertaken. It collects current and other real time oceanographic information.

Ports and Harbours: Located in the centre of the Gulf of Guinée, Pointe-Noire is in a strategic location and is an essential port for ships. Also known as “Porte océane de l’Afrique centrale”, Pointe-Noire plays an important role in the economies of landlocked countries in the sub-region. In 2003, the general traffic experienced in Pointe-Noire was about 10,810,537 tones and the total commercial traffic was 1,890,366 tones. The second port, Djéno petroleum terminal, is the main terminal for transporting oil and is situated about 13 miles from the public port. In 2003, 8,920,170 tones were transferred at the petroleum terminal.

Coastal Economy: Fishing is a major activity as it serves as a food source for a large part of the population. Its development is a key part in the national plan. All the activities are centred on production, income generation, and employment. By extension this improves the lives of those dependant on the fishing economy. In the tourism sector, the activities are concentrated on developing ecotourism which is modelled on conservation, preservation and protection of nature in the Conkouati protected area, a national marine park. The objective of tourism in Kouilou is to preserve the coastal ecosystems and make them a tourist attraction. Kouilou has a number of attractive environmental tourist sites.

Table 1. Environmental tourism sites in Kouilou.

Area	Sites
Pointe Noire	Côte sauvage Plage mondaine Pointe indienne Plage de Loango
Zone côtière de Loango	Mission Catholique de Loango Stèle du Port d'embarquement des esclaves Route de caravane
Diosso and its environs	Musée Ma-Loango à Diosso Les Gorges de Diosso La baie de Tchissanga Bois de singes
Djéno coastal zones	Bas Kouilou avec le pont sur le fleuve kouilou Plage de Mvassa
Lake zones	Plage de djéno Site Nanga et son lac loufoualéba Lac Cayo sur la route du Cabinda
Natural Reserves	Le sanctuaire de Tchimpounga Parc national de Conkouati-Douli

Fisheries: Fishing is considered to be a major activity by the government as it is a source for food as well as a sector with great potential for investment. Annual capture is estimated at 70 - 80 000 tones for continental fishing and 20 - 30,000 tones for maritime fishing (current production being 20,000 and 32,000 tones respectively). Currently, there are about thirty ships divided into eleven fleets that are part of the total number of industrial ships in Congo. Industrial production stands at about 12,000 tones. Artisanal fishing contributes to about 40% of the national sea fish catch, practised by the Béninois and Congolese fishermen.

Mineral Resources: Congo has a number of minerals but the most important include: petroleum, potassium, bitumen, sand and gold.

Agricultural products: Agriculture in the costal area is traditional in nature and the crops grown include, manioc, bananas, beans, maize, yams and courgettes. In industrial plantations, the main crops grown are coffee and cocoa.

Other marine resources: Mangroves represent a significant portion of coastal ecosystems, dominated predominantly by *Rhizophora*. This mangrove develops mainly in the estuaries of Loémé, Kouilou and Noubi on the one hand and in the lagoons of Malonda and Conkouati. These formations shelter various vertebrate and invertebrate fauna as well as flora. These include; gastropods, crustaceans, endemic fish and *periophthalmus papilio*. Currently, the mangroves are experiencing the effects of over exploitation such as wood cutting for domestic or industrial use. Additional marine resources are shells and other dead corals on the beaches.

DEVELOPMENT AND ACHIEVEMENTS OF THE NODC

The Délégation générale de la recherche scientifique et technique (DGRST) Centre is a government body which works in partnership with the Institute for Research Development (IRD). It was hosted by IRD in Pointe-Noire but as of April 2008, the centre was redeployed to the government. The centre now has become Pointe-Noire DGRST Research Centre. The centre is being reconstructed and will be streamlined with the policies of the government department. The National Oceanographic Data and Information Centre (CNDIO) is a public scientific and technological centre. It is located at the Centre de Recherche DGRST de Pointe – Noire and is under the Ministry of Environment and Tourism.

The CNDIO has three fundamental objectives:

- Improving the system of collecting, controlling and storing oceanographic data and information
- To provide oceanographic data to users of this information
- Increasing access to data and information to users

The management of coastal areas of Congo remains a major concern both in the areas of policy and environmental monitoring. In line with the plan for integrated management and development of the coastal areas the CNDIO provides already processed products that are directly usable. The data is also available in archives and includes oceanographic, environmental, physical, biological, pedological, and geological data.

Products and services available at the NODC:

Products and services that have been developed include:

- Catalogue of institutions that are involved in the acquisition and management of marine related information and data
- National directory and catalogue of marine and fresh water related professionals and researchers
- Catalogue of marine and coastal areas professionals and researchers
- Catalogue of oceanographic and trawling campaigns carried out in the Congolese continental shelf since 1957
- Catalogue of oceanographic campaigns and environmental data
- Catalogue of databases available on marine science and coastal areas
- Associations and NGO's in the coastal area (Department of Kouilou)
- State of the Congo coastal and marine ecosystem
- Reports on the state of the coastal area in relation to the national plan, including profiles of the changes noted in the coastal features, cartography/evaluation of the hot spots, formulation of the hot and sensitive areas
- National Report e.g. climate change and biodiversity
- The National Plan of Action for the Environment (PNAE), and state of the environment.
- Information and library management, including document and inter-library loans.



Figure 2. Example of erosion on the Congolese coast.

At the moment, the Centre offers the following services:

- Regular interactive mailing list on data available in the Centre
- Production of information notes, leaflets, bulletins, and other online and printed outreach material to sensitize the public to on going activities and issues.

The centre has identified 15 oceanographic and related products users in the management of marine and coastal ecosystems, and it is expected that a policy for the collection of these products will be developed at the national level. Several common products have several users (Table 2).

Marine Related Programmes and Organizations

Eight organizations have been identified as having the capacity to produce oceanographic data. Table 3 describes dates these organizations and their role in the acquisition of oceanographic data.

Table 2. Products required by users.

Users	Products
Ministry of Tourism and Environment	Data on coastal erosion, tides, forecasts of sudden rise in water levels, maps of fishing grounds, availability of fish, pollution index.
Port autonome de Pointe-Noire	Tide prediction and models, forecasts of sudden rise of sea levels, marine traffic guides, pollution index, sedimentary models, maps of the currents, oceanographic diagrams (bathymetry, SST, navigation risks).
Institute de recherche pour le développement	Tide prediction and models forecasts of sudden rise of sea levels, marine traffic guides, pollution index, sedimentary models, maps of the currents, oceanographic diagrams (bathymetry, SST, navigation risks, erosion maps, water quality, atlas on fishing areas, lagoon and estuary maps).
Direction Départementale des pêches	Tide prediction and models forecasts, of sudden rise of sea levels, marine traffic guides, pollution index, sedimentary models, maps of the currents, oceanographic diagrams (bathymetry, SST, navigation risks etc), erosion maps, water quality, atlas on fishing areas, lagoon and estuary maps, fisheries statistics, fishing models.
Service hydrographique du Port	Tide prediction and models, forecasts of sudden rise of sea levels, marine traffic guides, pollution index, sedimentary models, maps of the currents, oceanographic diagrams (bathymetry, SST, navigation risks, etc).
Communauté des pêcheurs	Tide prediction and models, forecasts of sudden rise of sea levels, marine traffic guides, pollution index, sedimentary models, maps of the currents, oceanographic diagrams (bathymetry, SST, navigation risks etc), erosion maps, water quality, atlas on fishing areas, lagoon and estuary maps, fisheries statistics, fishing models.

Industrie et AOPC (Association des Opérateurs Pétroliers Congolais)	Tide prediction and models, forecasts of sudden rise of sea levels, marine traffic guides, pollution index, sedimentary models, maps of the currents, oceanographic diagrams (bathymetry, SST, navigation risks etc), erosion maps, water quality, atlas on fishing areas, lagoon and estuary maps, fisheries statistics, fishing modelling, lagoon and estuary maps).
Chercheurs, Universitaires et étudiants	All available products.
Centre d'assistance météorologique aux activités maritimes et connexes (CAMAM)	Tide predictions and models, forecasts of sudden rise of sea levels, marine traffic guides, pollution index, sedimentary models, maps of the currents, oceanographic diagrams (bathymetry, SST, navigation risks etc).
Users	Products
Unité de recherche sur la production des plantations industrielles (UR2PI)	Ground maps, bio-geographic maps, maps on activities carried out on the ground.
Centre de Recherche Forestière du Littoral (CRFL)	Ground maps, bio-geographic maps, maps on activities carried out on the ground.
Cellule anti-pollution	Hydrocarbons.
Ministère de l'environnement	All available products.
O.N.G (Organisation non gouvernementale)	All available products.
PNCD (Parc National de Conkouati Douli)	All available products.

Table 3: Organizations and their roles.

Organization	Roles
1. Institut de Recherches pour le Développement	Oceanographic data, hydrological, pedologies and weather information, information circulars to users, researchers and students.
2. Direction départementale des pêches	Updating marine and fisheries information.
3. Centre d'assistance météorologique aux activités maritimes et connexes	Updating coastal meteorological information and assisting in marine related activities.
4. Direction départementale de l'environnement et tourisme	Monitoring and evaluation, repository of biological and physical information.
5. Agence pour la navigation aérienne (ANAC)	Updating coastal meteorological information.
6. Université Marien Ngouabi (faculté des sciences et de géographie, de géologie)	Collecting and disseminating information to users, repository of biological, chemical and geological data.
7. Service hydrographique du port	Essential information on sea navigation, the sea level, bathymetry, sedimentary models.
8. Marine marchande	Maintenance of law and order in the marine sectors, repository of essential information on navigation.
9. Cellule anti-pollution	Monitoring and evaluating pollution, repository of information on oil exploration.
10. Centre de Recherche Forestière du Littoral (CRFL)	Monitoring and evaluating pollution, repository of information on coastal ecosystems.
11. PNCD : Parc National de Conkouati Douli.	Monitoring and evaluation, repository of biological, physical and other information on protected areas.



Figure 3. Example of erosion on the Congolese coast.

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