

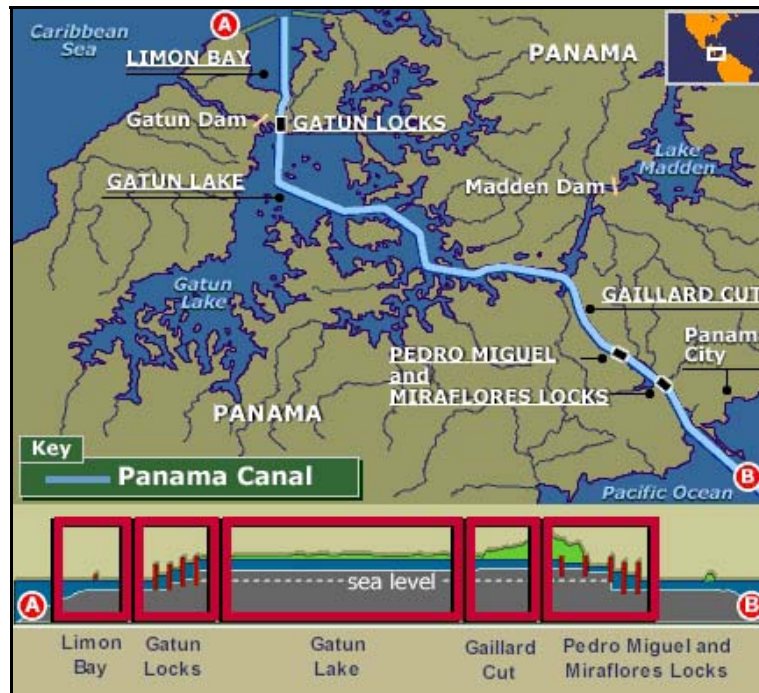
Panama

The Republic of Panama (República de Panamá) with its capital Panamá (2.764.000 inhabitants, 1996) covers an area of 77.080 km² with a population of 2,856 million inhabitants. The population density is 37 inhabitants per km², the share of urban population is 57 percent. Panama is the southernmost of the Central American nations, south of Costa Rica and north of Colombia. The country's comprises of incredible rainforests and one of the most beautiful deep-sea areas.

Nevertheless the country is primarily known for its canal. The history of the Panama Canal goes back to 16th century. After realising the riches of Peru, Ecuador, and Asia, and counting the time it took the gold to reach the ports of Spain, it was suggested, that by cutting out a piece of land somewhere in Panama, the trips could be made shorter and the risk of taking the treasures through the isthmus would justify such an enterprise.

The Panama Canal bisects the isthmus at its narrowest and lowest point, allowing passage from the Caribbean Sea to the Pacific Ocean. The canal was constructed in two stages. The first between 1881 and 1888 by a French company, then followed by the Americans, with their construction completed in 1914. In 1883 it was realised that the tide level at the Pacific side was almost 7 metres higher than the Atlantic side. Engineers concluded the difference in levels would be a danger to navigation. It was then proposed that a tidal lock should be constructed near Panama City to preserve the level from there to Colon. Eventually, due to some new thinking, and in an effort to do it right the first time, it was decided that the original plan should be modified and a widely accepted lock system should be used. Figure 4-3 shows the detailed map of the Panama Canal with a profile of the sea level.

Figure Fehler! Kein Text mit angegebener Formatvorlage im Dokument.-1 - Map of the Panama Canal with a sea level profile



Source: Autoridad del Canal de Panamá <http://www.pancanal.com>

The Panama Canal, operated by the United States for over 80 years, came finally under Panamanian control on December 31, 1999. The according departure of U.S. troops has had a small negative impact on the local economy.

Panama is an oil importer, and high world oil prices coupled with low prices for Panama's shrimp and banana exports also are expected to contribute to slow economic expansion in 2000. Panama's economy is based primarily on a well-developed services sector. Services include the Panama Canal, banking, the Colon Free Zone, insurance, container ports, and flagship registry, medical and health, and other business. Despite of the fact, that Panama has one of the highest GDP per capita in Central America (3.463 U.S. dollar), about 40 percent of its population are affected by poverty. The country's unemployment rate surpassed 14 percent in 2002.

Panama plays an important role in the world's energy markets. Mainly because the Canal is a major transit centre for oil shipments and highly frequented point in the world of commerce. Further the country is important in setting up connections the electricity and natural gas grids of North and South America and as energy is generally considered as a part of industry, to the extent that it is an intermediate input in the production process, the country could be seen as a strategic point.¹

Panama has no oil or natural gas resources and negligible coal reserves. Therefore, the 2000 oil consumption of almost 13,2 million barrels was totally covered by imports. Electricity generation accounts for most of Panama's domestic energy production, with hydroelectric generation. The overall electricity consumption of 3,8 million MWh was generated by a

¹ In Panama, however, the largest shares of energy are sold to the consumer's and commerce side. Therefore, a significant portion of energy used in Panama should be considered a part of the services sector; for the sake of this analysis, however, energy is placed under industry, following conventional practice.

hydropower contribution of 72 percent, a 27 percent share of oil-fired plants and the remainder of 1 percent which was contributed by small-scale renewable energy applications.²

Electricity transmission remains in the hands of the government through the public-owned distribution company (ETESA). Also in 1998, a regulatory body was created to oversee the electric, telecommunications, and water sectors. Electricity demand is expected to grow significantly in the coming few years, and new projects are planned to help meet this demand.

Up to now, there is no remarkable bioenergy utilisation in Panama. Possible biomass sources could be residues of agricultural products like coffee pulp, sugar cane, bananas, corn, rice and vegetables. Due to the timber industry of Panama, fast growing trees, bushes and sawmill residues can be utilised for the bioenergy generation. At present, the country's sugar production is 177.000 t/yr (2000) with an estimated bagasse availability of 576.000 tons.³ Nevertheless it is improbable that Panama is implementing large-scale bioenergy in the near future, as the country's economy mainly consists of industrial services which are relying on fossil fuels. The utilisation in rural areas however, can be a potential spot for the promotion of bioenergy.

² WEC 2002. and EIA SIEE 2000.

³ ISO 1999.