

ENVIRONMENT

Case study

The use of hydro-electric power in Brazil

Hydro-electric power is derived from the potential energy of dammed water driving water turbines and generators: the energy extracted from water depends not only on volume but on the difference in height between the source and the water outflow. The area surrounding the city of Nova Lima in Brazil, centre of AngloGold Ashanti's South American operation is located in the central Brazilian foothills with numerous natural springs, offering ideal territory for hydro-electric power generation.

The Rio de Peixe energy system was built in 1900, by the first superintendent of the Saint John del Rey Mining Company (predecessor to Mineração Morro Velho, which was in turn acquired by AngloGold in 1998). Built to provide energy for the gold plant and community, the system is still operational and supplies all the energy required to operate the Queiroz plant in Nova Lima. 100% of the power for this operation is drawn from hydro-electric power and the system is situated on land owned and maintained by the company.

The Rio de Peixe system today is not only a source of energy but provides an example of an excellently preserved ecosystem. The three small dams – Lagoa Grande, Codorna and Miguelão – provide enough water to generate approximately 59,000 MW/h. Lagoa Grande, also called Lagoa dos Ingleses, is the largest reservoir, and, with its harbour, hosts a number of recreational activities that are available to local communities, such as water skiing and canoeing. The water in the dams is of a high quality, being free of waste contamination and industrial effluents.

The preservation of the Rio de Peixe energy system has economic as well as environmental advantages. Licences for new hydro-electric dams are subject to increasingly stringent requirements in terms of Brazilian legislation involving such aspects as community relocation, suggesting a future scenario in which access to energy will be critical to a company's competitive position.

AngloGold Ashanti Mineração potentially also stands to benefit from the carbon finance provisions of the Kyoto Protocol. Hydro-electric power does not emit pollutants such as carbon dioxide (CO₂), and therefore does not contribute to global warming. The Kyoto Protocol, which was signed at the UN Council on climate change at Kyoto, Japan, in 1997 and became effective in February 2005, makes provision for 'carbon finance': the protocol sets clear limits on the amounts of greenhouse gases (such as CO₂) a country may emit. However, to avoid imposing inflexible emission targets that are unlikely to be met, carbon finance establishes the necessary market structures to trade the right of emission of a unit of greenhouse gas as a commodity.

