Gold mineralisation was discovered at Lihir in 1982, following which a major exploration campaign and feasibility study was conducted by a joint venture between Rio Tinto and Niugini Mining Limited. The Lihir Special Mining Lease (SML) was granted in 1995 following comprehensive environmental and other studies. Under the terms of the original project approvals, the Lihir project (including the SML) was transferred to a new PNG company - Lihir Gold Limited (LGL). Rio Tinto established Lihir Management Company to develop and operate the mine on behalf of LGL. In 1997 the first gold was poured at Lihir. In 2005, Rio Tinto divested its interests in Lihir, allowing the Lihir operations to become owned and operated by LGL. In August 2010, Newcrest acquired the Lihir operations as a result of the merger between Newcrest and LGL by court-approved scheme of arrangement.

Location

The Lihir gold operation is located on Niolam Island, the largest island in the Lihir Island group. Niolam Island is approximately 900 kilometres north-east of Port Moresby in the New Ireland Province of Papua New Guinea (PNG).

Vision

Newcrest’s vision is to be the Miner of choice for all stakeholders including our employees and contractors, the communities in which we operate and our shareholders. Social responsibility, safety and sustainability are the fundamental guideposts to our vision.

Ownership

The Lihir operation is 100% owned by Newcrest.

Gold deposit

The gold deposit at Lihir is within the Luise Caldera, an extinct volcanic crater that is geothermally active, and is one of the largest known gold deposits in the world. The principal component deposits within the Lihir open pit are called Lienetz, Minifie, Coastal and Kapit. Exploration in the Luise Caldera has identified several additional mineral deposits, which are collectively called Ladolam Deposit. The limits of the mineralisation have not been completely defined and are open at depth, along strike, and to the east (currently limited by the Pacific Ocean).

For the year ended June 2013, 649,340 ounces of gold were produced.
Environment

Newcrest understands how integral the environment is to its business and has strong systems in place to minimise and manage impacts.

The Lihir gold operation is located in an inactive volcanic area, which retains geothermal energy. Since 2003, geothermal energy has been used at Lihir to provide some of the operation’s power needs and reduce greenhouse gas emissions.

Lihir’s geothermal power plant was the first project in PNG to be registered for carbon credit trading under the Kyoto Protocol.

Lihir operates an ISO 14001 certified Environmental Management System (EMS), which assists in the planning and implementation of environmental management measures.

Lihir uses deep sea tailings placement (DSTP). In view of the heavy rainfall typically experienced on Niolam Island, the lack of suitable area for a tailings storage facility and the high seismicity of the region, DSTP was the preferred tailings placement method for Lihir. The plant tailings are detoxified within the confines of the mining lease before being placed offshore. Baseline studies were undertaken prior to the approval by PNG environmental authorities and commencement of the DSTP. Regular monitoring is undertaken to verify the operational performance of the system.

Waste rock from the mine is either used for construction purposes or transported in barges for off-shore submarine disposal. Submarine disposal is carefully planned and controlled to achieve a continuous rill slope along the steeply dipping sea floor and to prevent uncontrolled slumping triggering a rise in water levels.

Mining and ore processing

Most of the ore is refractory and is treated using pressure oxidation before the gold is recovered by a conventional leach process.

Newcrest has completed a major expansion of the Lihir process plant which included the installation of a new crushing facility and upgrades to the ore processing plant. The plant expansion will increase flexibility of the operation, improve the reliability of single pieces of equipment and lower fixed costs per tonne.

Safety and health

Newcrest is committed to employee and community health and safety and Lihir includes a range of education, training, counselling, prevention, and risk-control programs to assist employees, their families, and community members.

Lihir’s community liaison staff, in conjunction with the Lihir Sustainable Development Plan, provide education and counselling in immunisation, malaria, maternal mortality, tuberculosis, HIV/AIDS and sexually transmitted infections. Lihir has improved health access, including to a medical centre, and reduced the incidence of lifestyle diseases in the community.

Local hiring, training and development

Lihir currently employ more than 2,200 people, of which approximately 90% are from PNG.

Lihir’s recruitment, training and localisation strategy aims to build the capacity of Newcrest’s Lihirian and PNG workforce. Aligned with Newcrest’s local hiring policy, employment preference is given first to Lihirians, then to individuals from New Ireland Province, followed by individuals from other areas of PNG. Local employees are from one of the four groups of islands in Lihir.

Economic contribution

Newcrest’s Lihir operation makes a substantial contribution to the broader PNG economy and local communities in a number of ways, through taxes and royalties to national, provincial and local governments, salaries and wages, landowner contracts, investments in public infrastructure and services, and support of Lihirian and PNG suppliers.

During the 2011-12 financial year, the Lihir operation paid A$61.2 million in community expenditure (A$18 million more than the previous financial year) and A$91.5 million in total payments to the PNG Government. Since commencing operation in 1997 the Lihir operation has made an aggregate direct contribution to the PNG economy in excess of PGK 7,000 million.

At Lihir, Newcrest supports PNG-based suppliers and businesses where possible. Newcrest also contributes to the local economy in accordance with agreements with the government and landowners by providing public infrastructure and services, including access to health services, the provision of electrical power and water to local villages.