

# Lihir Island



LGL's 100% owned Lihir Island operation is one of the world's largest gold mines and processing facilities. The operation is located on the island of Lihir, 900 kilometres north-east of Port Moresby in New Ireland province of Papua New Guinea.



## HISTORY

The Lihir Island ore body was discovered in 1982 by Kennecott Explorations Australia and its joint venture partner Niugini Mining Limited, with exploration following between 1983 and 1995. In 1995 construction of the operation commenced, with the first gold pour recorded in May 1997. Since commissioning the mine has produced more than seven million ounces of gold.

## GEOLOGY

The Ladolam gold deposit on Lihir Island is centrally located within a relatively young caldera (known as the Luise Caldera) which formed due to the seaward collapse of portion of a 1000m high volcano.

The mineralisation is hosted within intrusive rocks and numerous breccia types. Much of the gold is refractory and is located within the microscopic lattice of fine pyrite crystals, which were deposited by hot fluids mixing and cooling in the host rocks. The deposit remains geothermally active, although all volcanic activity ceased many thousand of years ago.

Gold is the only metal of economic significance present within the Luise Caldera. A number of mineralisation styles have been recognised, ranging from early porphyry to late stage epithermal mineralisation.

## RESOURCE AND RESERVES

The ore body is very large and rich by global standards. The following tables show the composition of Lihir Island's gold resource, which includes 28.8 million ounces of reserves.

### Identified Mineral Resources (as at August 2009)

Resource category	Tonnes (millions)	Average grade (Au g/t)	Contained ounces (mozs)
Measured	59.4	2.48	4.7
Indicated	494	2.41	38.3
<b>Total M&amp;I</b>			<b>43.0</b>
Inferred	87.3	1.95	5.5

### Ore Reserves (as at 30 June 2009)

	Tonnes (millions)	Average grade (Au g/t)	Contained ounces (mozs)
Probable	269.2	2.77	23.9
Stockpiled ore (Proved)	61.6	2.46	4.9
<b>Total reserves</b>	<b>330.8</b>	<b>2.71</b>	<b>28.8</b>

#### Competent Person

The information in this report that relates Exploration Results and Mineral Resources at Lihir Island is based on information compiled by Mr Roy Kidd.

Mr Kidd is a member of the Australian Institute of Geoscientists and is a full time employee of Lihir Services Australia Pty Ltd (LSA) in the role of Principal Geologist. LSA provides services to LGL pursuant to a Managed Services Agreement. Roy Kidd has sufficient experience which is relevant to the style of mineralisation and the type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Roy Kidd consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Ore Reserves at Lihir Island is based on information compiled by Mr David Grigg.

David Grigg is employed by Lihir Gold Limited in the role of Superintendent Mine Planning for the company. David Grigg has sufficient experience, which is relevant to the style of mineralisation and the type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". David Grigg consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

## MINING

The mine consists of a single ore body with three linked open pits — Minifie, Lienetz and Kapit. The first pit to be mined was Minifie, which commenced in 1997 and is now largely completed. Current mining is focused on the Lienetz pit, which is deeper than Minifie but higher in grade. The life-of-pit strip ratio for Lienetz is approximately 2:1 (waste: high-grade ore + low-grade ore). Lienetz will be the main source of ore at Lihir Island over the coming few years, after which time the mining focus will shift to the third ore zone, Kapit.

The planned final dimension of the pit is approximately 2 kilometres x 1.4 kilometres, with a final depth of over 200 metres below sea level. Material moved from the pit was more than 50 million tonnes in 2008.

## PROCESSING

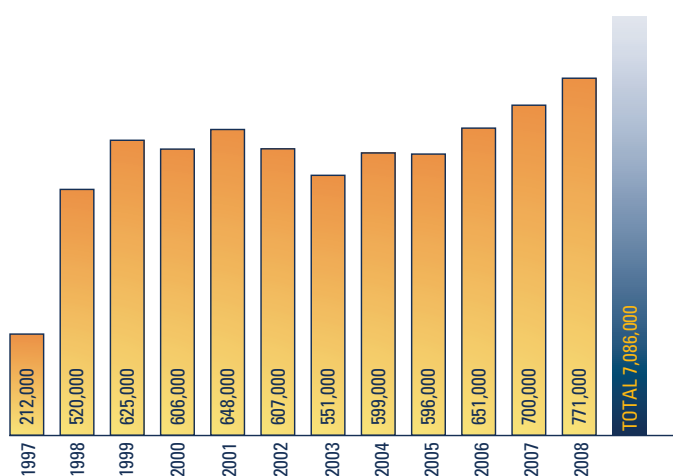
Ore is predominantly refractory sulphide ore which must be treated via pressure oxidation through an autoclave before the gold can be recovered. Following the successful commissioning of the flotation circuit expansion in early 2007, the processing plant is capable of treating more than six million tonnes of ore per annum to produce in excess of 800,000 ounces of gold.

## MINE LIFE

Mining on Lihir Island is scheduled to continue until 2021 at current rates, with processing of lower grade stockpiles to continue beyond 2030.

## TOTAL GOLD PRODUCTION (AS AT 31 DEC 2008)

The Lihir Island operation has produced 7.09 million ounces of gold since operations began in 1997.



## MILLION OUNCE PLANT UPGRADE (MOPU)

In 2008 LGL approved a major expansion of the Lihir Island process plant to increase annual gold processing capacity to approximately one million ounces per year.

The project involves the installation of an additional autoclave to the process plant that is double the capacity of each of the three existing autoclaves. Annual throughput will increase to a maximum of around 11 to 12 million tonnes, lifting gold production by up to an average of 240,000 ounces per year over the remaining operating life.

## PRODUCTION AND FINANCIAL DATA

		2008	2007
<b>Mine</b>			
- High grade ore mined	kt	<b>6,181</b>	6,111
- Economic grade ore mined	kt	<b>8,335</b>	4,380
- Material moved	kt	<b>50,660</b>	58,260
<b>Processing</b>			
- Ore milled	kt	<b>6,154</b>	4,816
- Grade	g Au/t	<b>5.86</b>	5.51
- Recovery	%	<b>82.5</b>	86.0
- Gold poured	oz	<b>771,456</b>	700,211
<b>Revenue</b>			
- Gold sold	oz	<b>765,484</b>	707,339
- Price – cash	\$/oz	<b>865</b>	666
<b>Total cash costs</b>	\$/oz	<b>406</b>	305

## GEO THERMAL

The Lihir Island project is located in an inactive volcanic caldera, which retains remnant geothermal energy in the form of steam. Initially the steam was vented to cool the ore body and enable safe mining, but since 2003, LGL has harnessed this steam to generate power for the operation. Current geothermal capacity at Lihir Island is 56 Megawatts, approximately 75% of the operation's power needs.

LGL's geothermal power plant was the first project in Papua New Guinea to be registered for carbon credit trading under the Clean Development Mechanism of the Kyoto Protocol. LGL generated US\$4.5 million in revenue in 2008 by selling Certified Emission Reductions (CERs) on global markets. The plant reduces greenhouse gas emissions by approximately 280,000 tonnes per annum, which equates to approximately four percent of Papua New Guinea's total CO<sub>2</sub> emissions.

## POWER USAGE

**Geothermal Power Plant**

2008 capacity	56 Megawatts
2008 electrical power requirement	76 Megawatts

**Heavy Fuel Oil Consumption**

2007 usage	~43,000 tonnes
HFO per megawatt	~0.3 tonnes

## DIESEL CONSUMPTION

2008 usage	~45 million litres
------------	--------------------

## WORKFORCE

Lihir's workforce, including business partners, totals 4,251 people.

**Employees**

	Number	Percentage %
Lihirian	746	36
PNG nationals & others	1,333	64
<b>Total</b>	<b>2,079</b>	<b>100</b>

**Business partners**

	Number
PNG nationals	2,073
Expatriates	99
<b>Total</b>	<b>2,172</b>

## POPULATION OF LIHIR ISLAND

The Lihir Group is made up of four islands with a total population of approximately 14,163 Lihirians, and approximately 3,734 people from other parts of PNG and overseas.

## MINING FLEET

Trucks:	36 x Cat 785 (135 – 140 tonnes)
	5 x Cat 777 (85 tonnes)
Shovels:	6 x O&K RH200 Shovels (23 cubic metre)
	1 x O&K RH120 Excavator (14 cubic metre)
	1 x Cat 5130 Excavator (10 or 12 cubic metre)

## LGL INVESTOR INFORMATION

**Stock Exchange Listings**

Australian Stock Exchange (LGL)  
NASDAQ National Market (LIHR)  
Port Moresby Stock Exchange (LGL)  
Toronto Stock Exchange (LGG)

**Issued Capital**

Ordinary shares – 2,368,729,935

**Volume of Shares Traded**

(average daily turnover, millions)

	2008	2007	2006
ASX	15.9	13.1	13.3
NASDAQ*	0.6	0.2	0.2

\* Each LIHR ADR on NASDAQ represents 10 shares

**Substantial shareholders**

Commonwealth Bank of Australia	9.9%
NWQ/Tradewinds	9.8%
BlackRock	9.7%
Fidelity	8.8%

**Market capitalization**

As at November 2009 – A\$8.5 billion

## CONTACT FOR INVESTOR INFORMATION:

**Joel Forwood**

Manager Investor Relations

Tel: +61 7 3318 3331  
Mobile: +61 438 576 879  
Email: joel.forwood@LGLgold.com

## AUSTRALIAN CORPORATE OFFICE:

Level 9, 500 Queen St  
Brisbane Queensland 4000 Australia

Tel: +61 7 3318 3300  
Fax: +61 7 3318 9203

www.LGLgold.com

