

MANAGING THE ENVIRONMENTAL IMPACTS OF NATURAL RESOURCES DEVELOPMENT in PAPUA NEW GUINEA

November 2007
AIST Centre
Geological Survey of Japan
Tsukuba, Japan



Presentation by:
Edward Nicholas
Environmental Scientist
Minerals Resources Authority
Papua New Guinea



Outline...

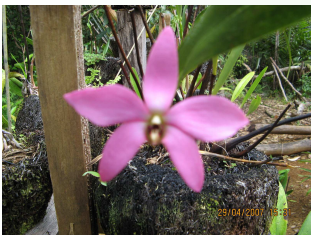
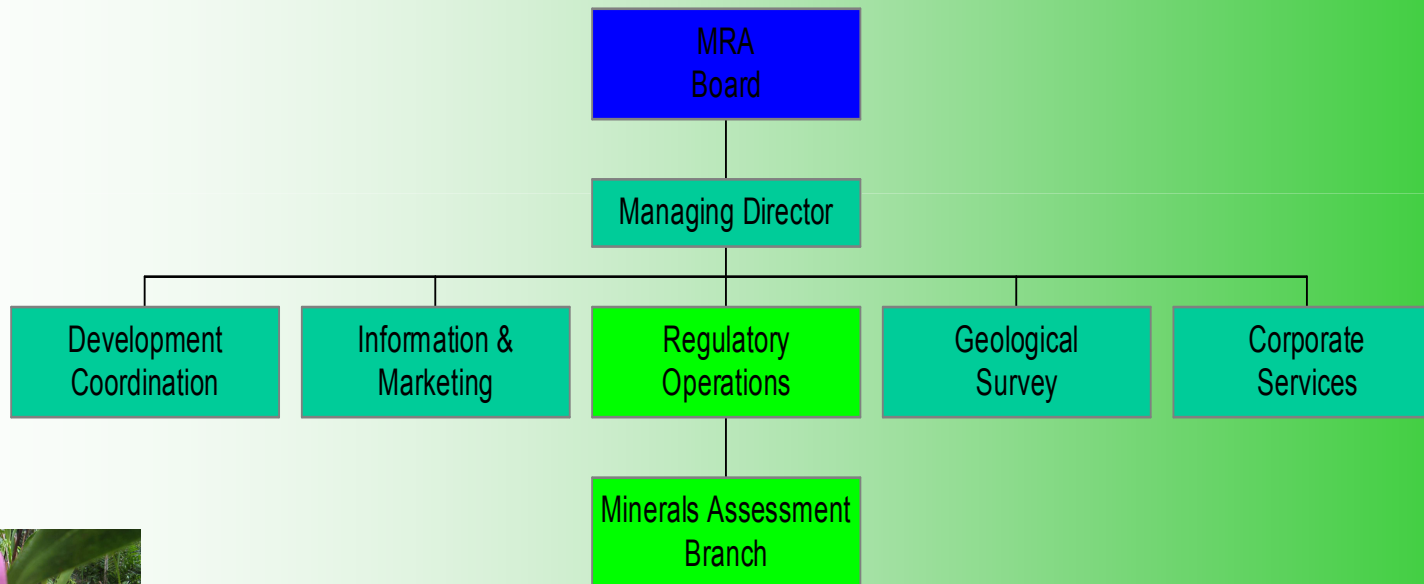
- ◇ Introduction (my organization, my country)
- ◇ Overview of natural resources development (Mineral resources)
- ◇ Overview of Environmental Management of natural resources development
- ◇ Environmental problems in mining
- ◇ Industry responsibilities
- ◇ Summary





My Organization...

MINERAL RESOURCES AUTHORITY ORGANISATIONAL STRUCTURE



This is where I work...



MRA Mandate

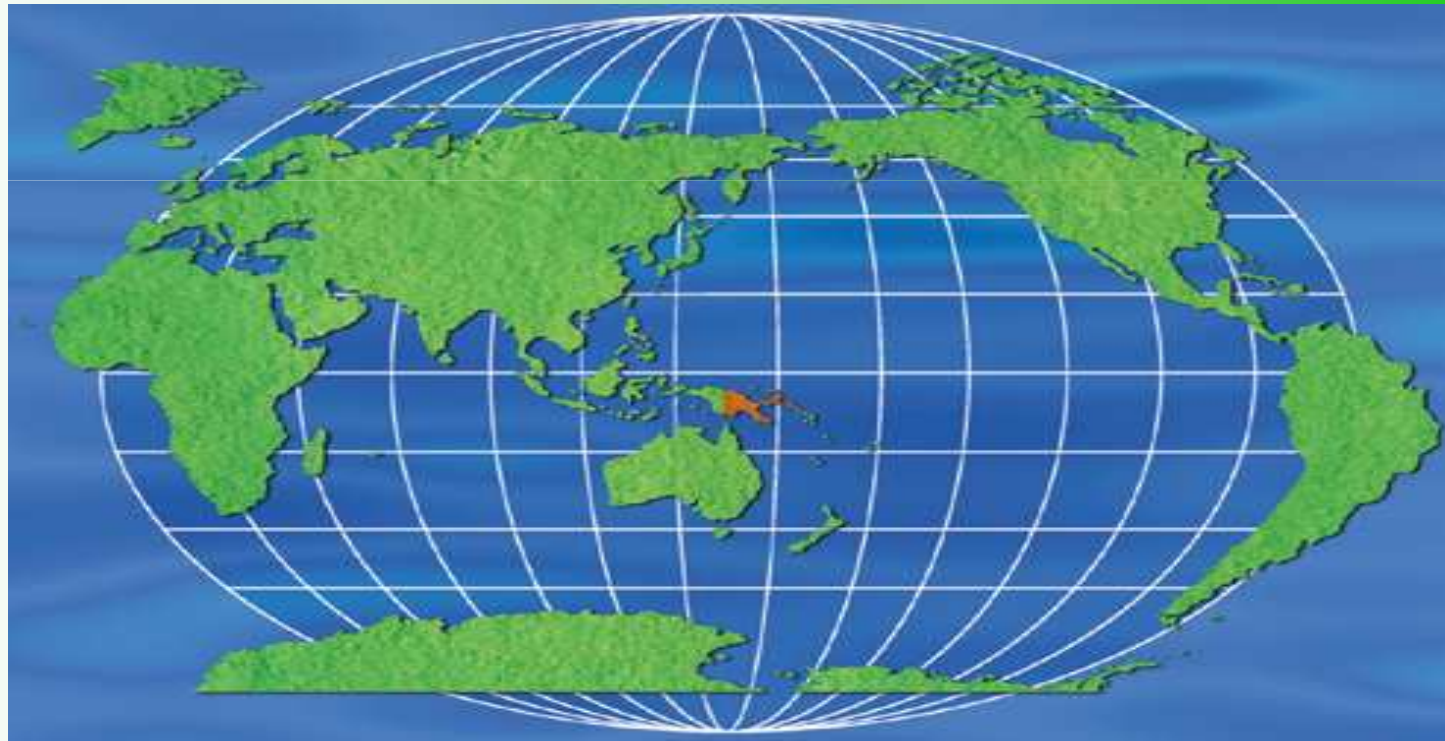
1. Effectively promote a healthy and sustainable mineral industry;
2. provide a regulatory environment which maximizes mining opportunities to ensure optimum benefits for the people of PNG





My Country.....

- ◇ Situated in the South Pacific
- ◇ Lies between 1-12 degrees S latitude and 141-157 degrees E longitude



Brief cont...

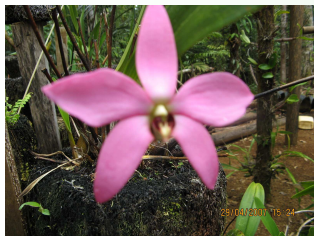


- ◇ Comprises of 600 islands, 8, 300km of coastline. Total land area is 462, 840sq.km-largest nation in the South Pacific



Brief cont...

- ◇ Climate is tropical/monsoonal-dry and wet with temp. varying b/w 4 -24 degrees in the highlands and 23-33 degrees in low coastal areas Population: approx. 5 million of which 80% live in rural areas
- ◇ Pop. density is very low with about 8 people/sq. km of land.
- ◇ Also have a very diverse society which includes 800 languages and ethnic groups





Brief cont...

- ◇ Gained independence on 16th September 1975 from Australia
- ◇ Use the Westminster System of Government
- ◇ House of Representatives consists of 109 elected members.
- ◇ Have 20 provinces, which have their own prov. Governments including the local governments.





Overview of Natural Resources Development in PNG

Oil & Gas



- ◇ First substantial oil reserves discovered in 1980s in the Southern Highlands of PNG by Chevron Niugini & British Petroleum (BP) (first oil discovery in 1911)
- ◇ Commercial production began in late 80s
- ◇ BP and Chevron assets take-over by Oil Search (PNG) Limited in 1998 & 2002 respectively.
- ◇ Export of crude oil resources contribute about 24% of GDP
- ◇ Plans underway to develop PNG's gas resources with 3 LNG projects in advance planning stages

Pictures of oil resource development in PNG





Overview cont...

Mining

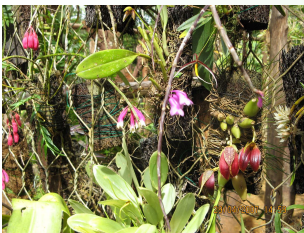
- ◇ First reported traces of gold in PNG were from pottery collected in Redscar Bay to the west of Port Moresby in 1852.
- ◇ 1896 – development of 1st underground mine on Sudest Island by British New Guinea Gold Pty.
- ◇ 1922–26: Laloki Copper mine was one of only 2 mines supplying Cu to Australia.
- ◇ 1920's – development of Wau goldfields
- ◇ Panguna Copper – first large scale commercial operation
- ◇ More mines have been discovered and developed since



Overview cont...

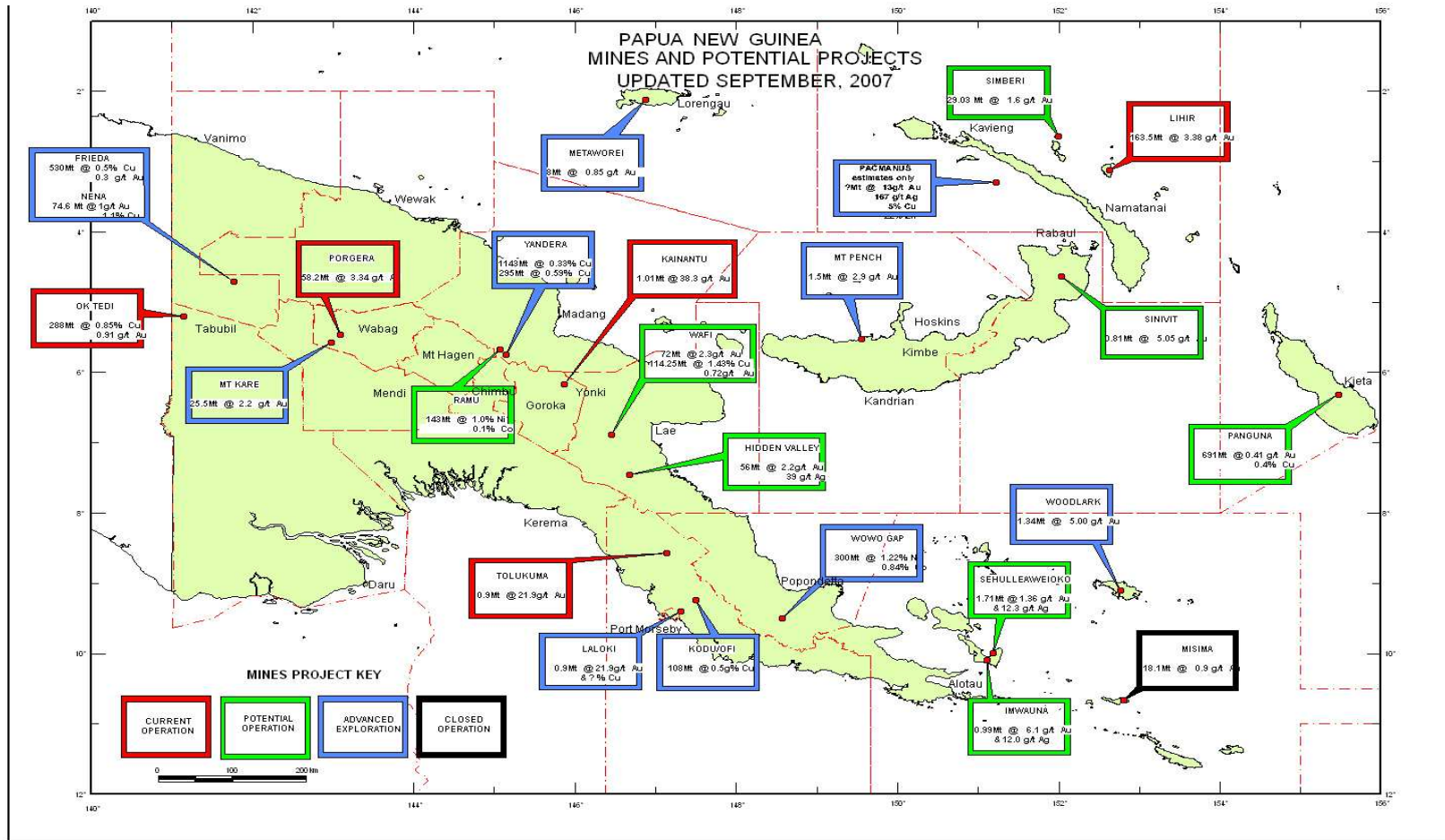
Operating Mines

- ◇ Porgera, Kainantu, Ok Tedi, Tolukuma Sinivit and Lihir. The Sinivit gold mine commenced commercial operations in September 2007 and is the latest addition
- ◇ In 2006, the mines produced 55.34 tonnes of gold, 175,902 tonnes of copper and 48.39 tonnes of silver to contribute K7.5 billion (~US\$2 Billion) representing 59% of PNG's total export merchandise in that year.





Mines & Potential Mineral Projects





Overview of Environmental Management of Naturals Resources Development

Environment Regulatory Process

- ◇ Enshrined in the 4th National Goal of the Constitution
- ◇ Mandated by the Environment Act 2000
- ◇ Requires all developers of naturals resources to undertake EIA and submit EIS for consultations, review, verification etc..before approvals are given
- ◇ Ensures monitoring of naturals resources development activities by developers/regulators
- ◇ Provision for ENFORCEMENT actions to be taken against offenders



Environmental Problems – Mining

Mine Construction)

- ◇ Loss of specific ecological habitats
- ◇ Short term increase in sedimentation of rivers/shorefront
- ◇ Increase generation of construction related mine waste
- ◇ Loss of access to wild resources by local communities



Pictorial examples of mine construction pollution on immediate & surrounding environs



Increased construction related
mine waste



Loss of ecological habitat



Mud Flow



Increased sediment in river
channel



Increased turbidity in river
channel



Mine Operations

- ◇ Management of Mine Waste Rock (ARD issues)
- ◇ Management of Mine Tailings
- ◇ Management of hazardous solid and liquid mine derived waste
- ◇ Management of general (non-hazardous) mine waste
- ◇ Management of Mine related noise and air pollution





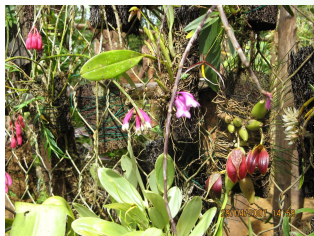
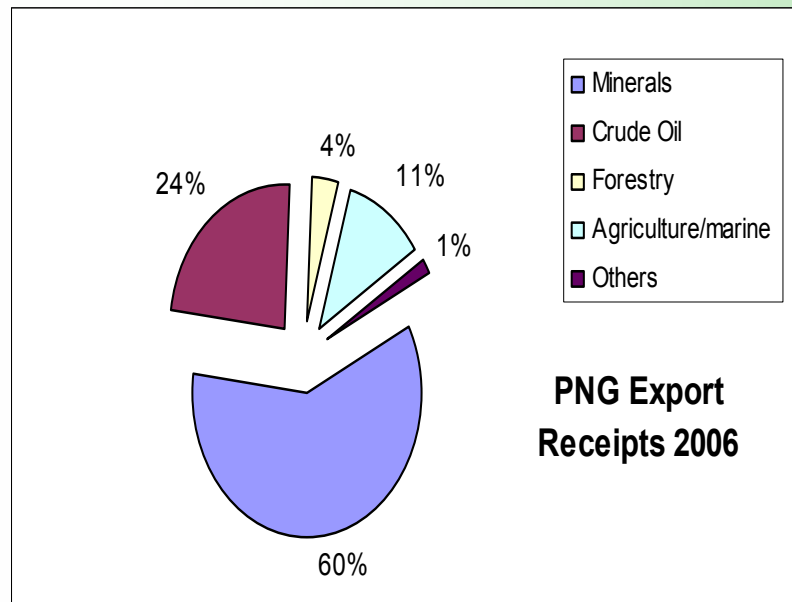
Industry's Responsibility to Environmental Management

- ◊ Most companies have developed their own EMS in line with regulatory requirements and BEP
- ◊ A few companies are now accredited to ISO 14001 EMS
- ◊ All most all companies in the mining sector in PNG work in close consultation with PNG Government to address environmental problems affecting their operations





In Summary...



◊ Exploitation and development of PNG's natural resources is the foundation for its future growth and prosperity, since they contribute 99% of PNG's export revenues.

◊ While our development aspirations are high, we have to find a balance in between natural resources development and environmental protection.

Sustainable Development...?!@#&