

Terrestrial and Marine Baseline Surveys 2006 and 2007

The Ramu Nickel Joint Venture (RNJV) and its manager RNML are very committed to the environment and have designed the Project to minimise and where-ever possible mitigate the environmental and social impacts of the project. The updated terrestrial and marine baseline surveys were launched in May 2006, through 2007 and 2008, will be continuing in 2009. RNML will work closely with landowners, Department of Environment and Conservation (DEC) and Mineral Resources Authorities (MRA) to achieve the highest standards of compliance. The baseline survey and monitoring programs will be operated and reported within internationally acceptable protection and management standards.

1 Terrestrial Baseline Studies

1.1 Fringing Coral Reef Survey (including Visual Fish Census)

- Determined the baseline status of coral and existing coral reef fish abundance on the fringing reefs.
- Underwater visual census (UVC) and digital recording undertaken.



1.2 Surface Hydrology

Gauging stations were established at locations that are likely to be impacted by the project construction and operation.



1.4 Meteorological Stations

The weather stations record the following parameters:

- Air temperature.
- Rainfall.
- Relative humidity.
- Solar radiation.
- Wind speed and direction.



1.3 Noise Survey

Baseline noise monitoring was undertaken to characterise pre-development noise conditions on the perimeter of SML 8 and on the process plant boundaries and to provide a base against which future noise conditions can be compared.



1.5 Stream Water Quality Measurements

- Characterise pre-development water and sediment quality of streams and off river water bodies in the mine area and the process plant area.
- Provide a base against which future stream water and sediment quality can be compared.

1.6 Air Quality Measurements



- Characterise pre-development air quality conditions on the mine lease and the process plant boundary.
- Provide a base against which future air quality conditions can be assessed.
- Measurement of particle concentrations in air corresponding to respirable size PM10.
- Multi-gas monitoring of NO₂, SO₂ and H₂S.

1.7 Health & Dietary Habits

The study was conducted and data acquired as a combination of questionnaire, physical measurements and clinical examinations.



1.8 Village Statistics

Socio-economic parameters were determined in all villages/hamlets in the vicinity of the mine site and refinery. The survey was based on a questionnaire.

1.9 Freshwater Fish Survey

- Determine the aquatic species that occur in and around the proposed mine site, and in the rivers and off-river water bodies downstream.
- Assess whether the assemblage compositions had changed since the initial sampling rounds in the late 1990s.
- Identify the common species.
- Monitor metal bioaccumulation in fish and prawns to extend the baseline information on existing pre-mining contaminant levels in aquatic biota.
- Assess the impact of the introduced species and other processes not related to the mining project on native aquatic species in the mine area and downstream sites.



1.10 Vegetation Survey

A baseline survey was undertaken of vegetation diversity and cover at locations around the refinery to allow future assessment of impacts of refinery emissions, or other impacts on vegetation.



2 Marine Baseline

2.1 Upper Ocean Surveys

Ocean profiling was taken to the depth of 350m using a Seabird SBE-19 CTD instrument fitted with sensors that also recorded light transmissivity and photosynthetically active radiation (PAR).

2.2 Ocean Sediment and Biota Characteristics

The ocean floor was sampled to assess the character and chemical properties of the sediments.

2.3 Near-shore Sedimentation

Water sampling was undertaken offshore of the mouths of coastal streams in the Basamuk area to determine pre-construction background conditions during both the dry and wet seasons.

2.4 Marine Fisheries

Existing deep-slope fisheries information was validated and further information collected to better characterise existing deep-slope and shallow-water reef fisheries.

The environmental design of the Project is based on extensive survey work collected over 9 years. All of the Environmental Baseline Studies have now been completed and RMNL and the RNJV are looking forward to finishing the construction and commencing operations phases of the Project by the end of 2009.

