

ENVIRONMENT

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Innovative industrial course of action that is committed to protecting the environment

An industry's environmental responsibility is measured by the compatibility between the economic and social repercussions of its activity and maintaining the quality of the natural ecosystems.

Goro Nickel is a responsible company that has taken all possible steps to minimise its project's environmental impact on a long term basis. Numerous expert assessments have confirmed the proposed options, in view of the applicable regulatory framework, the characteristics of the host environments and the best techniques available.

SETTING UP A STRATEGIC WATCH ON ENVIRONMENTAL IMPACTS

Taking into account Elements that are Important for the Environment (EIE) ensures respect for:

- the regulations,
- the ecological value of ecosystems as well as their value to the national heritage,
- the concerns of the people.

This approach allows a monitoring plan to be put in place with suitable indicators for these EIE.

Surveillance of the host environments is significant: it consists of hundreds of check points. There are nine environmental monitoring plans. They concern the surface water and ground water, marine environment, fauna and flora, revegetation, topsoil, invasive species and biodiversity.

A MAJOR IMPLICATION FOR ENVIRONMENTAL MONITORING

Atmospheric monitoring:

- 5 stations for measuring air quality (including one mobile station) on site

Water monitoring :

- 18 underwater monitoring stations
- 22 stations for monitoring surface water (over 120 analyses per month and over 1,600 analyses a year)
- 56 stations for monitoring ground water (over 40 analyses per month and over 1,100 analyses a year)

Innovative and reassuring undertakings to protect the environment: 64 studies and modelling exercises have been carried out on managing the effluent.

INDUSTRIAL AMBITION BASED ON RESEARCH DONE BY EXPERTS

A great number of studies have been carried out in the last 15 years, on the **quality of the seawater**: 3 studies between 2000 and 2006; on the **study of currents**: 5 studies between 2000 and 2008; on **submarine reliefs**: 2 specific studies between 2000 and 2003 to add to the state of knowledge about the area begun in 1994; on the **reefs and associated communities**: 13 studies between 1994 and 2007; on **sediment characteristics**: 3 studies since 2000; on the **technology and position of the ocean outfall**: 10 studies between 2000 and 2008; on **fauna management**: avifauna (3 studies since 2002), herpetofauna (7 studies since 2004), myrmecofauna (2 studies since 2004), freshwater fish and macroinvertebrates (14 studies since 1999); as well as expert assessments: **26 expert assessments** carried out between 2000 and 2008 at the request of Goro Nickel and 2 second assessments at the request of the Southern Province.

AN EFFECTIVE ENVIRONMENTAL MANAGEMENT SYSTEM

The overall design of the Goro Nickel site means the impact of its activity can be controlled. For example, siting the plant near the mine cuts down on haulage and the circulation of the ore as slurry in pipes cuts down on transportation.

Waste is 100% treated before being either confined to the Kwe West valley (waste termed solid residues), or dispersed in the sea (liquid salt effluents) to minimise the impact on the environment. The solution which Goro Nickel has opted for consists of recycling, in the best way possible, the effluents from the metallurgical processing. So only 35% of the treated liquid effluents will be discharged into the sea, in an area where there is a strong current (the Havannah channel).



MAINTAINING BIODIVERSITY: PLANT RESTORATION IN THE MINING SCRUBLAND

By setting up a research programme on the plants of the mining scrubland back in 1996, Goro Nickel gave a considerable boost to improving scientific knowledge and to awareness of the mining scrub's value in terms of biodiversity.

Goro Nickel made a point of developing reforestation techniques in partnership with the neighbouring people. Today, and for a long time to come, the manufacturer wants to heighten their awareness of the expertise of nurserymen and women.

This collaboration will enable **1 million plants to be produced per year**, thanks to the nurseries at Yaté which Goro Nickel supplies with seedlings.

IN BRIEF

GORO NICKEL IS INVESTING TO SAFEGUARD THE GRAND SUD ECOSYSTEMS

Overall: 50 billion CFP invested in environmental protection, including over 30 billion CFP dedicated to treating industrial effluents.

With regard to measuring air quality: an investment of 4 billion CFP in systems for treating atmospheric emissions and an investment of 100 million CFP in setting up a network for monitoring ambient air quality.

With regard to water monitoring: an investment of over 4 billion CFP in works to manage surface water and ground water at the mine, the Kwé valley, the plant and port.

With regard to revegetation: expected production of one million plants will be made possible through the support of the nurseries at Yaté. The development costs for this operation: 250 million CFP.



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INFOS

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Goro Nickel, a responsible manufacturer, a sustainable commitment

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Responsible and sustainable mining activity

In carrying out its mining and metallurgical activities, GORO NICKEL is endeavouring to act in accordance with the principles of sustainable development:

- in managing the environmental impacts,
- in relations with the local people.

COMMITMENTS WITHIN AN INTERNATIONAL CONTEXT

Since the Rio de Janeiro summit in Brazil in 1992, sustainable development, biodiversity conservation and participative management have been concepts and management methods that all international authorities have been advocating and developing. Governments and large mining companies are making every effort to implement them, through new techniques and practices that show more respect for people and their cultures and for the environment. Goro Nickel respects the principles of the international charter of the ICMM - International Council on Mining Metals, of which VALE is a member.

Goro Nickel has an active policy towards sustainable development, respecting the principles of the plan to maximise the potential of New Caledonia's mineral wealth.

These sustainable principles, established during the construction phase, are now in place for the responsible, sustainable mining of New Caledonia's mineral resources.

In its construction phase, Goro Nickel was able to create an economy whilst showing respect for the environment and creating momentum for social progress.



COMMITMENTS WITHIN THE LOCAL NEW CALEDONIAN CONTEXT

Goro Nickel's development objective regarding its operations has been to determine viable frameworks for reconciling the economic, social and environmental aspects of its business.

During the four-year construction phase, Goro Nickel's responsibility has been to make as many commitments as possible to help make sustainable improvements to the area where it is set up. This socially responsible business approach that is innovative in the New Caledonian mining environment was voluntary.



ECONOMIC ECONOMIC

Positive direct consequences on New Caledonia's economic development

SIGNIFICANT KNOCK-ON EFFECTS

The Goro Nickel project has generated during its four years' of construction and will generate in the long term, in its operating phase, major economic spin-offs for New Caledonia, thanks in particular to:

- The creation of direct, indirect and induced jobs;
- Related activities generated by its project;
- Tax revenue resulting from its own activities;
- The process that allows the development of New Caledonia's deposits of low grade oxidized ore;
- Exports of finished nickel and cobalt products that will help restore equilibrium to New Caledonia's balance of payments, as it is a country that is a heavy importer.

REMARKABLE BIODIVERSITY

This overall sustainable approach for the benefit of New Caledonia originated right from when the plant was designed, with the choice of the hydrometallurgical process. This technology enables high quality nickel to be produced and reserves to be developed that were previously unexploited, such as laterite (not offering any commercial value) and cobalt.

By producing a sevenfold increase in exploitable resources across the territory, this process allows better exploitation of natural resources and the undoubted sustainability of New Caledonia's economic development.

IN BRIEF

A POSITIVE AND PROMISING ECONOMIC ASSESSMENT:

Since construction...

- Over **70 billion CFP** invested in the local economy since October 2004
- Over **750 local businesses** have benefitted
- In 2007: over **20 Melanesian businesses** achieved a turnover of more than **3.6 billion CFP**.

...and then

- The annual amount of local investments is estimated at **4.5 billion CFP**;
- Over **18 billion CFP** in operating expenses will be injected annually into the New Caledonian economy;
- The taxes paid by Goro Nickel will amount to over **1 billion CFP** per year (in steady operating conditions).



SOCIAL SOCIAL SOCIAL SOCIAL

A social step benefitting the people of New Caledonia

The industrial activity generates sizeable social knock-on effects that will remain sustainable throughout operations for a whole set of beneficiaries within New Caledonian society. Goro Nickel, as a responsible company that cares about the concerns of all those with whom it is in contact, has put in place a number of measures to offer social and civil support.

DRIVING NEW CALEDONIAN SOCIETY FORWARD: EMPLOYMENT AND TRAINING

2,700 New Caledonians found stable work over several years on the building site for the plant. Existing companies increased their business volume and numerous others came into being thanks to the business generated by the construction, especially in the Grand Sud.

The end of the construction phase is a significant social challenge. In anticipation of this, the company has put in place a plan of action for 2008-2009, in addition to the measures in the PREGO Plan. This Programme for Remobilisation for Employment after Goro, that has been rolled out by the Southern Province, aims at facilitating a return to work for 1,500 employees at the end of their contract between now and March 2009. The voluntary support offered by Goro Nickel consists of four priorities: training, employment, support for economic micro projects and encouraging local contractors to play a part in local economic development.

The package of supportive measures to aid redeployment that Goro Nickel is volunteering makes 300 people in the Grand Sud its priority.

Goro Nickel has also been contributing since 2002 towards the promotion of technical skills for New Caledonians, who will represent over 90% of its work force in the stable production phase.

NEIGHBOURING COMMUNITIES: INFORMATION AND PARTICIPATION

Goro Nickel has striven to apprehend the very specific background to the concerns of the neighbouring population through:

- a vast socio-economic impact study carried out in 2007,
- regular contacts formed by its community relations teams,
- transparent flow of information, based on scientific studies regarding the effluent and water treatment,

- and site visits and information meetings, in the presence of scientific experts, organised for the specific benefit of the people of Yaté, Ile Ouen, Ile des Pins and Mont-Dore.

Informing the public, consulting with it and involving it in environmental matters constitute an essential step to gain support for the project from the people as a whole and to reassure them about all the environmental measures taken to preserve their quality of life.

IN BRIEF

AN EXTENSIVE SOCIAL ACHIEVEMENT

Since construction...

- **2,700** local people working on site, out of the **6,500** people involved in the project in New Caledonia
- Significant growth in paid employment in New Caledonia since March 2006 with the unemployment rate falling by **1/3**
- In the last 4 years, nearly **1 billion CFP** invested in training programmes

...and then

- **800** direct jobs with a target of **90% local employees**;
- **1,500 to 2,000** indirect and induced jobs;
- **2.3 billion CFP over 30 years** planned for training.

BETWEEN 2005 AND 2008:

- **150** community projects supported
- **350 million CFP** invested

