



# SUSTAINABILITY REPORT FOR 2004

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MINERA ALUMBRERA IS INVOLVED IN THE SOCIAL, ECONOMIC AND INSTITUTIONAL DEVELOPMENT OF THE COMMUNITIES IN WHICH IT OPERATES, THROUGH SUSTAINABLE DEVELOPMENT, EDUCATION, HEALTH, COMMUNITY AND WELFARE PROGRAMMES.



## MESSAGE FROM THE GENERAL MANAGER

IT GIVES ME GREAT PLEASURE TO PRESENT THE INAUGURAL MINERA ALUMBRERA SUSTAINABILITY REPORT, COVERING THE YEAR 2004. THIS REPORT OUTLINES THE MINERA ALUMBRERA APPROACH TO SUSTAINABLE OUTCOMES FOR ALL STAKEHOLDERS AND WILL PROVIDE AN ANNUAL SUMMARY OF THE ONGOING PROGRESS AGAINST OUR SOCIAL, ENVIRONMENTAL AND BUSINESS OBJECTIVES.

MINERA ALUMBRERA IS STRIVING TO ACHIEVE A SUSTAINABLE APPROACH THAT DELIVERS BENEFITS TO ALL STAKEHOLDERS. WE VALUE OUR PEOPLE AND RECOGNISE THE RESPONSIBILITY THAT WE HAVE IN THE SUSTAINABLE DEVELOPMENT OF OUR REGION OF INFLUENCE IN ARGENTINA.

THE FOUR PILLARS OF OUR SUSTAINABLE DEVELOPMENT PROGRAMME ARE OUR HEALTH, SAFETY, ENVIRONMENT AND COMMUNITY (HSEC) PERFORMANCE. WE BELIEVE THAT EXCELLENCE IN HSEC IS GOOD FOR OUR BUSINESS AND UNDERPINS OUR DRIVE TO CONTINUOUSLY IMPROVE.

I AM PLEASED WITH OUR ACHIEVEMENTS IN 2004 AS WE HAVE MADE PROGRESS AGAINST ALL OF OUR OBJECTIVES. IN SAFETY WE CONTINUED TO MAKE SIGNIFICANT IMPROVEMENTS, INCLUDING THE ACHIEVEMENT OF 2,000,000 HOURS WORKED FREE OF WORKPLACE INJURY. OUR ENVIRONMENTAL PERFORMANCE CONTINUES TO IMPROVE AS WE STRIVE FOR ISO 14001 CERTIFICATION IN ALL AREAS OF OUR BUSINESS. WE CONTINUE TO DEVELOP A SYSTEMATIC AND RISK FOCUSED APPROACH TO MANAGING OUR BUSINESS, ENSURING THAT SUSTAINABLE OUTCOMES ARE ACHIEVED BY SKILLS DEVELOPMENT AND TRAINING.

WE CONTINUE TO STRENGTHEN RELATIONSHIPS WITH OUR NEARBY COMMUNITIES THROUGH THE CREATION OF MORE JOBS, COMMITMENT TO FURTHER INVESTMENT, AND THE ENHANCEMENT OF HEALTH AND EDUCATION FACILITIES AND SERVICES. OUR COMMITMENTS TO OUR COMMUNITY SOCIAL PROGRAMME LIE AT THE HEART OF THE MINERA ALUMBRERA OPERATION. WE HAVE INCREASED OUR CORPORATE SOCIAL INVOLVEMENT (CSI) FUNDING IN 2005 IN BOTH THE CATAMARCA AND TUCUMÁN PROVINCES TO BUILD ON THE SUCCESSFUL PROJECTS ESTABLISHED IN THE PAST.

THE BUSINESS FOCUS DURING 2005 IS TO ADHERE TO OUR FUNDAMENTAL BUSINESS PRINCIPLES TO ENSURE WE CONTINUE TO MEET OUR OBJECTIVES. THE KEY TO ACHIEVING THIS GOAL IS THE LONGEVITY OF THE MINERA ALUMBRERA OPERATION. VALUE-ADDING INITIATIVES WILL CONTINUE TO BE PURSUED THIS YEAR WITH DEMONSTRATED EFFECTIVE LEADERSHIP BY ALL LEVELS OF MANAGEMENT AND THE IMPLEMENTATION OF ADDITIONAL TRAINING AND SKILLS DEVELOPMENT PROGRAMMES FOR OUR PEOPLE.

2005 IS ANOTHER EXCITING YEAR FOR MINERA ALUMBRERA. OUR LEADERSHIP AND EMPLOYEE EFFORTS AND PARTNERSHIPS WITH ALL OF OUR STAKEHOLDERS ARE FUNDAMENTAL TO THE SUCCESS OF 2005. I AM REALLY LOOKING FORWARD TO US WORKING TOGETHER IN CONTINUING THE ACHIEVEMENTS OF MINERA ALUMBRERA.

*Jon Evans*  
General Manager - Minera Alumbreira Ltd.





## MISSION

WE CONTRIBUTE TO THE ARGENTINE DEVELOPMENT, PROMOTING OPEN AND HONEST RELATIONSHIPS WITH OUR PEOPLE, THE COMMUNITIES AND INSTITUTIONS, GENERATING LEADING RETURNS ON INVESTMENTS IN THE MINING INDUSTRY, IN A SAFE, SUSTAINABLE AND ENVIRONMENTALLY RESPONSIBLE WAY.



-Haul trucks and shovel working at the open pit.  
-Partial view of the open pit.

## We work ethically

### To ensure this:

-We comply with the laws and regulations in each country where we operate, and apply standards of business behaviour.

-We endorse the principles set out in the United Nations Universal Declaration of Human Rights, and strive to reflect and promote these within our business, as well as with those suppliers and customers with whom we do business.

-We adhere to the Global Compact, a United Nations initiative across the world inviting companies to get socially involved in human rights, employment and environmental matters.

-We support the free business principle and ensure free business competition by complying with the applicable anti-trust laws.

## Minera Alumbreira and the community

## Objectives

- Work in a healthy injury free environment.
- Achieve continuous and sustainable improvements in our environmental performance.
- Develop the capabilities of our people.
- Continuous value improvement of our business, achieving a return on our invested capital above 15%.
- Support our communities through our social responsibility programme.
- Consistent and reliable performance of our plants and equipments at maximum capacity production.
- Continuous improvement and implementation of common key systems.

Minera Alumbreira's actual challenge is to translate the above into day-to-day initiatives and decisions. To this end, Minera Alumbreira adds on the personal responsibilities of its employees, business partners and contractors.

## Values

Our decisions and actions are based on:

- Safety and health above all.
- Honesty and reliability. We conduct our business with ethics and fulfill with our obligations.
- Courage. We face every difficulty and challenge that arises. Daily challenge of exceeding accepted practices and conventional thinking.
- Equality. We treat people as we wish to be treated ourselves.
- Passion. We work actively and enthusiastically in search of excellence, encouraging positive initiatives.
- Accountability for our performance and behaviour.
- Success achieved through team-work, open communication and involvement.
- Respect for the community and the Environment.

## We work responsibly

### To ensure this:

-We manage a Group<sup>1</sup> wide programme, in collaboration with independent experts, to identify and to manage risks across our businesses.

-We ensure that all our operations have site HSEC (Health, Safety, Environment and Community) management systems in place, which are consistent with the Group's HSEC Policy and international standards, to minimize the risks and negative impacts associated with our business activities.

-In addition to minimising the impact of our own operations on the environment, we use resources as efficiently as possible, reducing waste and input materials, in order to limit the environmental impacts associated with our supply chain.

-Each mine maintains a regularly updated plan, which sets out what is required for its closure in respect of its financial, community and HSEC obligations.

-We set HSEC targets, and will measure and report our performance against these accurately and comprehensively on a continual basis.

-We ensure that all employees are aware of their share in Minera Alumbreira's HSEC responsibilities.

## We work openly

We support the codes of best practice relating to accounting practices and standards. We will report financial information that is complete, accurate, honest and timely.

We will ensure that all business transactions are properly authorised and accurately recorded, in accordance with recognised accounting practices.

<sup>1</sup>Xstrata is a major diversified mining group world wide, which is listed in the Swiss and London Stock Exchange. Based in Zug (Switzerland), the group maintains a significant position in six major international commodity markets, including copper, coking and thermal coal, ferro-chromium, vanadium and zinc, with additional gold, silver and lead exposures. The Group operations span across Australia, South Africa, Spain, Germany, Argentina and the United Kingdom. As an international operator of natural resources, basically metals and ores, Xstrata employs 24,000 people throughout the world.





## ON MINERA ALUMBRERA

MINERA ALUMBRERA WAS ESTABLISHED IN ARGENTINA IN 1994 TO MINE THE BAJO DE LA ALUMBRERA COPPER AND GOLD DEPOSIT IN CATAMARCA USING OPEN-PIT MINING METHODS. MINING OPERATIONS COMMENCED THREE YEARS LATER.



INNOVATION



### Ownership / Joint Venture

With an initial USD 1.2 billion investment on five major projects, Minera Alumbraera commenced mining operations at 2,600 metres above sea level in 1997.

The mining rights over the deposit are vested on Yacimientos Mineros de Agua de Dionisio (YMAD), a state-owned company that entered into an unincorporated joint venture agreement with Minera Alumbraera.

Minera Alumbraera is led by Xstrata Copper, a company that holds a 50% share. The remaining 50% is held by Goldcorp (37.5%) and Northern Orion Resources (12.5%).

-Open pit.

*Minera Alumbraera and the community*

### An industrial mining facility composed of five projects

An overview of the open pit and ancillary facilities.

Blasted rock goes through a large-scale crushing, grinding and flotation process. Then, fine material is processed into copper and gold concentrate, which is pumped through a 316 km pipeline from the mine to the filter plant in Tucumán.

A 202 km 220 kV powerline was constructed by Minera Alumbraera from El Bracho (Tucumán) to the minesite.

Concentrate is dewatered at Minera Alumbraera's filter plant and stored at the facility in order to be railed to Minera Alumbraera's port facilities in Rosario, Santa Fe.

Concentrate is loaded onto Minera Alumbraera's train. Minera Alumbraera's rolling stock includes four locomotives and 182 railcars, which are maintained at Minera Alumbraera's port facilities in Rosario, Santa Fe. Concentrate is stored and shipped from the port facility to international markets for further processing.



Production



Bajo de la Alumbrera operates 24 hours/day at the following production rates:

340,000 tonnes moved per day
105,000 tonnes milled per day
Daily concentrate production: 1,800 tonnes
Annual copper production: 180,000 tonnes
Annual gold production: 630,00 troy ounces

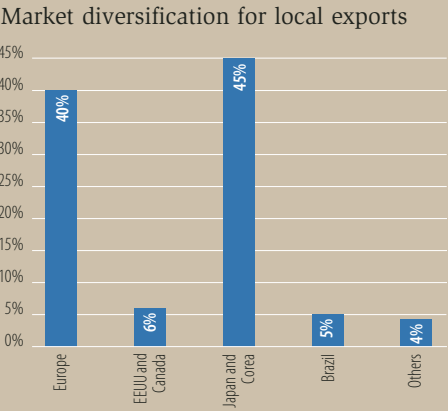
Using the following equipment:

4 electric-rope shovels
40 220 tonne haul trucks

Exports



More than 45% of Minera Alumbrera exports are shipped to non-traditional markets



Source: National Mining Department.

Minera Alumbrera’s social and economic impact at the national level

The social and economic impact report was updated by Universidad Nacional de San Martín in 2004 based on the report prepared in 2001 by the National Mining Department and Universidad Nacional de Catamarca.

Minera Alumbrera’s contribution to the argentine economy

Project Revenues

- Salaries for more than USD 16 million annually
- Average mining exports for USD 470 million annually (from 1998 to 2003)
- Local purchases for more than USD 110 million
- USD 92 Indirect value added

Fiscal Revenues

- Direct tax revenues: \$ 27 million\*
- Excise tax revenues: \$ 77 million\*
- Total tax revenues: \$ 104 million

\*Annual average



Concentrator Maintenance Mechanic Antonio Quispe supervising the rock-breaker assembly.

Minera Alumbrera and the community



Minera Alumbrera’s contribution to the province of Catamarca

1,200 jobs

Total annual revenues for USD 530 million:

- USD 4.1 million in wages (direct jobs)
- USD 2.4 million in wages (indirect jobs)
- USD 2.8 million to purchase local supplies and services
- USD 7.2 million of indirect added value
- USD 12 million of provincial and municipal tax collection, the equivalent to approximately 60% of the province’s tax resources

Minera Alumbrera’s contribution to the Primary Impact Area (PIA) Andalgalá, Belén and Santa María

- 842 total jobs with a job multiplier of 3.8
- Total annual revenues of USD10.8 million
  - USD 2.8 million in wages (direct jobs)
  - USD 1.5 million in wages (indirect jobs)
  - USD 3.6 million of indirect added value
  - Sustainable development programmes involving revenues for USD 2.9 million

-Conveyor belt with primary crusher behind.

Project features

The infrastructure works required by the mining project have provided secondary benefits to the areas of scope and nearby provinces.

Power line

El Bracho-La Alumbrera 220 kV power line is 220 km long, from Tucumán to the mine site. The town of Santa María has benefited from the connection as it was a real need of the population. Until 2001, this town in the Northeast of Catamarca had generated power locally from diesel oil generators.

This involved a restriction for home consumption and difficulties to efficiently supply the water pumps used for irrigation purposes of main crops such as pepper and grapevines. A local community organization, “Fuerzas Vivas”, organized with the aid of Minera Alumbrera to connect the local network to the Alumbrera powerline.

Fiber Optic

In turn, the fiber optic used by the Minera Alumbrera -adjacent to the pipeline- improved the telephone communications and Internet usage of the towns located between the mine site and Tucumán.

The local communities that have benefited from the positive contributions of the mining project are Andalgalá, Villavil and Aconquija, in the province of Catamarca, and Faimallá, Monteros and Concepción in Tucumán.

Road 40 improvements

Minera Alumbrera has commissioned improvement and paving works of a major section of National Road 40 through bridges and by-pass roads for heavy traffic.

The sector identified as Quebrada de Belén (Belén Canyon) in the Town of Belén has been fully straightened and paved. A bridge over the Río Salado River has been built, in addition to any necessary access roads over National Road 40 that connects the North and South of our country. These works that involve a major benefit for the communities and for the province of Catamarca required a USD 13 million investment and were fully financed by Minera Alumbrera.





## CORPORATE SOCIAL INVOLVEMENT

CORPORATE SOCIAL INVOLVEMENT IS THE COMPANY'S COMMITMENT TO CONTRIBUTE TO SUSTAINABLE DEVELOPMENT WITH THE PARTICIPATION OF THE STAKEHOLDERS, IN ORDER TO IMPROVE THE QUALITY OF LIFE OF THE SOCIETY AS A WHOLE.

The direct contributions provided by mining to the local community in terms of royalties, taxes, charges, employment and supply chain are necessary but not enough for local community development.

As a player committed to the society, Minera Alumbraera believes that it has a dynamic role in its link with the community, through the relationship with the associations aiming at achieving social welfare.

However, the company cannot -and it is not its role- substitute public policies. In this sense, the public sector should have a major role.

Within this framework, the company cooperates in the search for solutions to several social problems -which prevent the growth of different sectors- to improve the quality of community life.

The company's involvement is voluntary, in addition to

the existing legal rules and is part of a system of responsibilities shared with all members of the society.

The tools used for this work with the society consider cultural differences to achieve the goal of generating a sustainable social investment. For this purpose, joint work by Minera Alumbraera, the local society and the government, is required so that, at the end of the mine life, the inhabitants of the area may profit from what they have learnt in order to continue with future social actions.

The company's priority is environmental protection. Therefore, Minera Alumbraera works with respect and responsible care for the environment, through strict quality controls applied to all mine operations. Since the beginning of the project, the performance of the company in environmental issues has been subjected to local audits which follow the strictest standards set by the nation and by the countries of the investing companies and the World Bank.

### *Minera Alumbraera and the community*

-Pachamama festival at Laguna Blanca.  
-Environment official Gabriel López Vázquez, measuring the Vis water flows.

## Global Compact

In 2004, Minera Alumbraera joined the Global Compact, a United Nation worldwide initiative to encourage social accountability by private businesses. It is a voluntary initiative that provides a global framework for sustainable development and responsible corporate citizenship through committed and creative business management. As one of the 245 Argentine signatories, Minera Alumbraera was the only local miner committed to enforce the ten principles under the Compact, which are mostly associated to human rights, work standards and the environment. The local programme is closely linked to the achievement of the Development Goals for the Millennium, as set by the Argentine Government last October.

The Ten Principles under the Global Compact:

- Human Rights
  - 1- Support and respect the protection of internationally proclaimed human rights.
  - 2- Make sure that businesses are not accomplices in human rights abuses.
- Labour
  - 3- Uphold the freedom of association and the effective recognition of the right to collective bargaining.
  - 4- Foster the abolition of compulsory labour.
  - 5- Foster the abolition of child labour.
  - 6- Ensure the elimination of discrimination in employment and occupation.
- Environment
  - 7- Support a precautionary and effective programme to environmental issues.
  - 8- Implement initiatives that demonstrate environmental responsibility.
  - 9- Foster the development and deployment of environmentally friendly technologies.
- Corruption
  - 10- Companies should act against any form of corruption, including extortion and bribery.

## Minera Alumbraera's Corporate Social Involvement Programme Expansion

A decision was made in late 2004 by Xstrata as Minera Alumbraera's operator to expand its Community Programme by providing additional funds for public infrastructure works in Catamarca and Tucumán . This is an unprecedented decision that will enable the execution of major community programmes. Xstrata will make a \$12 million contribution principally to health and education programmes in Catamarca for the next four years. The works to be developed under this programme will be discussed with the provincial government. Xstrata will also make a \$11 million contribution to similar programmes in Tucumán up to 2007. Xstrata contributions will be made to a trust fund especially created for such purpose. The above amounts are in addition to the assistance to be provided by Minera Alumbraera under its community programme (which will continue in full force and effect) since project inception.



-Development of a multi-purpose pad at El Shincal school in Londres.  
-National Road 40 improvements in Hualfín, Belén.





# COMMUNITY DEVELOPMENT PROGRAMME

MINERA ALUMBRERA’S COMMUNITY DEVELOPMENT PROGRAMME WORKS OVER SPECIFIC ACTIONS INCLUDED IN LONG TERM PROJECTS MANAGED BY PROFESSIONALS BOTH SKILLED AND TRAINED FOR SUCH PURPOSE.

THE COMPANY COOPERATES IN THE SEARCH FOR SOLUTIONS TO SEVERAL SOCIAL PROBLEMS TO IMPROVE THE QUALITY OF COMMUNITY LIFE. MINERA ALUMBRERA’S CONTRIBUTIONS ARE PROVIDED TO THE COMMUNITIES CLOSE TO THE PROJECT -ANDALGALÁ, BELÉN AND SANTA MARÍA- AND ARE COMPOSED OF THREE MAJOR ELEMENTS: SUSTAINABLE DEVELOPMENT, HEALTH AND EDUCATION.

## Objectives

- Become involved in the society where we are doing business to contribute to improve the quality of life in neighbouring communities.
- Promote sustainable development to foster the productive activities of the area beyond mining.

## Neighbouring towns





# *Programmes to support productive activities*

Minera Alumbreira participates in 18 programmes to support regional productive activities in the towns close to the deposit. This initiative is coordinated by seven technical organizations, in four towns in the province of Catamarca, and with the active participation of several beneficiaries, such as groups of small farmers.

The key projects include those that improve the quality of life through the transfer of technology, the introduction of new activities to promote self-supply and strengthening relationships. Other projects are intended to streamline producers’ competitiveness in local markets and to train local workers with a view to facilitate skilled employment.

These works, performed by the community, have the support, training and follow-up of Minera Alumbreira, Instituto

Nacional de Tecnología Agropecuaria (INTA), and agrotechnical training institutions.

One project includes the development of greenhouse gardens and community farms through the INTA Pro-Huerta programme. To support the growth of agricultural projects, the company has participated in infrastructure works with irrigation consortia and the Irrigation Department of Catamarca. This has allowed an increased water supply to the cultivated area, improving storage capacity and distribution of irrigation water to extend the harvest season.

Small and medium-sized farmers of the towns are the main beneficiaries of this community programme. However, its success is only guaranteed by the on-going efforts they show every day.



-Inside view of greenhouse, La Ciénaga de Abajo.  
-Cumin and anise producer in La Puntilla, Belén.

*Minera Alumbreira and the community*

## *Infrastructure works*

### *Irrigation channels*

The company has supported the development of irrigation works to expand productive areas. They have worked together with the Irrigation Department of Catamarca, municipal authorities and Irrigation Consortia of the three towns. During 2004, 6 km of irrigation channels were constructed in Londres, Belén. Such action optimised productive conditions and increased the use of water resources. Alumbreira has provided the cement and the Municipality the workers.

### *Sanitation campaigns for crops and goats*

Nuts, fruit trees and goats are the most traditional economic resources in the area. The campaign against the codling moth granulosis virus, that affects crops, and against animal diseases is a major support for local farmers. Local farmers, INTA Belén and Andalgala were responsible for technical training, Farmers Associations executed the work and Alumbreira provided protection equipment, fuel, vaccines and pesticides.



-Nuts producer from Belén.  
-Irrigation water channel, Londres, Belén.



## Pro-Huerta Programme



At present, in the western area of Catamarca, a greenhouse project for mountain areas is being developed. The Development and Training Programme for orchards and farms at schools is addressed to parents, students and teachers. With the active participation of INTA Pro-Huerta, Minera Alumbraera is fostering production for self-supply to improve the food habits of the population in general and of school children in particular.

-School greenhouse and farm at Corral Blanco. Opening promoted by INTA Pro-Huerta and Minera Alumbraera.

The Pro-Huerta programme fostered by the Ministry of Social Development of the Nation through INTA helps 3.4 million people with unsatisfied basic needs. As poverty increased in 2003, 200,000 people were included in this food safety programme involving 3,500 towns throughout the country. Technical experts and promoters, together with civil organizations, are engaged in community training to develop horticulture and provide technical and systematic support. According to INTA's statistics, there are over 500,000 orchards that produce up to 210 kg of vegetables each. In the last years, the Programme also incorporated the development of farms that amount to 31,000.



-Greenhouse and farm opening ceremony at Villa Vil, Andalgala.

Page 17:  
-Community greenhouse, Antofalla.

**Minera Alumbraera and the community**

## Case 1: Greenhouse projects for mountain areas

Greenhouse construction is one of the most important community projects for Minera Alumbraera, with INTA's advice. Fundación YPF-Repsol and Minera del Altiplano (FMC) also joined the project.

### Date and place:

Year 2004.  
Belén and Andalgala Towns.

At the school of La Aguada, municipality of Londres, Minera Alumbraera, Fundación YPF-Repsol and Pro-Huerta have developed a food safety and technology transfer project through the construction, training and start-up of a school greenhouse and farm.

In the town of Antofagasta de la Sierra, Minera Alumbraera, Minera del Altiplano and Pro-Huerta have participated in the development of Antofalla community greenhouses, Gendarmería Infantil greenhouse in Antofagasta de la Sierra and school greenhouses of Las Quinoas, Los Nacimientos and El Peñón.

### Direct and indirect beneficiaries:

Schools and families.

### Programme objectives:

- Implementation of school learning of greenhouse system in the home.
- Improve students' diet that will benefit their performance at school.
- Have fresh vegetables all the year round and introduce new species for the region.

### Company contributions:

Provider of critical supplies and responsible for the logistics.

### Other community organizations involved:

Students, teachers, parents and the municipalities provided workforce and INTA Pro-Huerta, technical advice. Fundación YPF-Repsol provided the medical equipment to obtain a diagnosis of children and teenager's health.

### Climatic and geographic conditions of the town or district:

#### Londres:

- About 2,500 inhabitants.
- 15 km from Belén.
- Small hospital.
- Primary and secondary schools.
- Major archaeological field: El Shinkal.
- Crops, fruit trees. Main producer of nuts.

#### Antofagasta de la Sierra:

At 3,000 m above sea level, Antofagasta de la Sierra is over 500 km from the capital city of the province. It has major mountain ranges such as Sierras de Calalaste, Aguas Calientes, Sierras de Antofalla, Los Colorados, Sierras de Buenaventura with volcanoes, deserts and large beautiful areas. Climate is dry and arid. The town's area is 28,000 km<sup>2</sup> and has about 1,200 inhabitants. Villa de la Sierra, with 400 inhabitants, is the main town and centre of supply for such a large town.

### Quantifiable and non-quantifiable changes:

Greenhouses have become production and learning spaces. Families, supported by the institutional structure, have learnt to implement a crop system in their homes that allows them to improve their diet, apart from having fresh vegetables the whole year round. Otherwise, this would be impossible due to weather conditions. The joint work of mining companies helped to expand the programme and promote an integration concept of the Social Accountability programmes implemented by both public and private sectors.





## Varietal Re-engineering

This initiative is aimed at improving the social and economic standing of small walnut and vine producers by adapting local crops to market requirements while improving product quality and quantity through varietal re-engineering.

The goal is that local producers obtain higher marketing benefits while producing competitive market products and improving their association and management skills.



-Hualfín producers working in grapevine varietal re-engineering.  
-Irrigation consortia, Las Barrancas, Belén.



### Case 2: Hualfín strains

The project of grapevine varietal re-engineering was prepared by INTA Belén. 23 grapevine producers in the area and families with small pieces of land worked together to prepare 30 hectares of new grapevines and stone fruit trees. According to the technical reports on soil quality and water resources of the area prepared so far, Hualfín would be ready to increase its cultivated area to 100 hectares. Thus, current production would be raised by 1.2 million kilograms. Expectations are focused on the Malbec result. These producers are comparing its quality to that of the Luján de Cuyo region in Mendoza.

#### Date and place:

Year 2004.  
Hualfín, Belén.

#### Direct and indirect beneficiaries:

Grapevine producers.

#### Programme objectives:

- Generate workforce.
- Expand cultivated area.
- Optimise grape quality.

#### Minera Alumbra's contribution:

17,000 plants from Malbec variety. Likewise, over 2,000 wire rolls for fences were provided.

#### Participation of other institutions and the community:

INTA provided technical support and training, while producers provided land, workforce and posts for grapevine preparation. Over 120 people of the town worked to remove weeds from the lands, level them, erect posts and dig wells.

*Minera Alumbra and the community*

## Crop Optimization

The training of producers of aromatic seeds improves the sustainability of productive systems and gives better quality of life to traditional producers and their families.



-Cumin and aniseed producers in La Puntilla, Belén.  
-Cumin and aniseed producers in El Alto, Belén.



### Case 3: Production of aromatic seeds

Project to streamline the production of cumin, anise and pepper for paprika.

#### Date and place:

Year 2004.  
City of Belén, Londres and Norte Chico de Belén.

#### Direct and indirect beneficiaries:

Aromatic seed producers.

#### Programme objectives:

- Generate skilled workforce.
- Organise and strengthen groups of producers to improve their self-management and partnering skills.
- Train groups of producers through the right technological transfer that may allow to increase their productivity and competitiveness, thus strengthening traditional production.

#### Minera Alumbra's contribution:

Supply of agrochemicals and fertilizers to improve the quality and yield of aromatic crops.

#### Participation of other Institutions and the community:

INTA and Agronomías de la Zona provided training for the integrated management of soil, water and chemicals.

#### Changes:

Producers joined to execute sustainable projects and thus, they were able to have access to critical supplies through cooperatives.





MINERA ALUMBRERA’S SUPPORT TO EDUCATION

A NUMBER OF EDUCATION, CULTURAL AND COMMUNITY INITIATIVES WERE UNDERTAKEN IN 2004 BY MINERA ALUMBRERA.

MINERA ALUMBRERA ASSISTS MORE THAN 200 PRIMARY AND SECONDARY SCHOOLS BY PROVIDING TEACHING AIDS, TECHNOLOGICAL AND CONSTRUCTION MATERIALS. MINERA ALUMBRERA’S SUPPORT IS ALSO AVAILABLE TO LOCAL LIBRARIES, MUSEUMS, SPORTS AND CULTURAL ASSOCIATIONS.

Minera Alumbreira’s support to local schools

Minera Alumbreira worked jointly with local teachers and school authorities to improve local education.

**Place:**  
Schools from Belén, Andalgalá and Santa María.

Direct and indirect beneficiaries:

District	Kindergarten	Primary schools	Polytechnics, secondary schools	# of students
Andalgalá	15	25	6	4890
Belén	32	62	13	8750
Santa María	14	34	9	7500

La Cañada School #337, Belén, Catamarca.

**Purpose:**  
Be involved in the social and institutional development of neighbouring communities.

**Minera Alumbreira’s contribution:**  
Assistance to local schools included teaching aids and miscellaneous school equipment, first-aid kits, sports and construction materials.

**Local climate and geography:**  
Assistance was also provided to schools in remote areas.

**Development:**  
Teaching and sports materials as well as improved infrastructure help integrate local teachers, students and their families to further local development.

Minera Alumbreira and the community

Remote training on “Environmental education for sustainable development” for local teachers

Minera Alumbreira supports six-month radio sessions and traditional courses for local teachers. Specific text books are updated on an annual basis. To pass this course, attending teachers must submit a final paper on environmental education for school children.

**Date and place:**  
During 2004.  
Catamarca.

**Direct and indirect beneficiaries:**  
1,200 teachers.

**Purpose:**  
-Pursue Environmental Education as a theoretical and practical tool for sustainable development in light of the new social, cultural and political demands.  
-Identify local environmental issues, including their reasons, consequences and proposed solutions.  
-Enforce the Environmental Education Principles for Integrated Community Projects.  
-Make teachers at all school levels aware of the importance of their role in environmental education.

**Minera Alumbreira’s contribution:**  
Support and advertising at the local level.

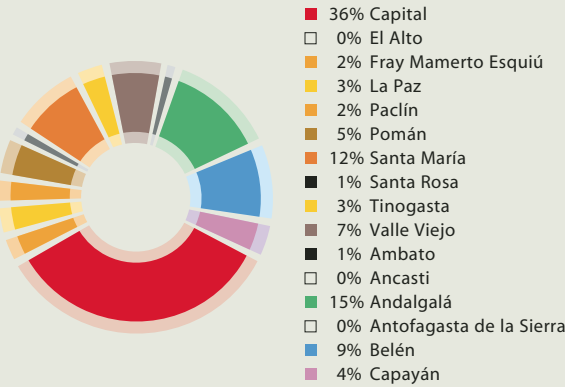
**Other communities and organizations involved:**  
This course is generally and pedagogically coordinated by Los Algarrobos -a non-government organization promoting sustainable development in remote desert areas throughout Argentina, through anti-desertification community programmes- and the Environmental Management Division under the Provincial Mining Department as well as the Minister

of Education. Thus, local schools will be integrated to the final research paper of the teacher’s training process.

**Local climate and geography:**  
Since schools are geographically scattered throughout the provincial territory, the programme was implemented through radio sessions with a view to make the course available to teachers from remote areas.

**Development:**  
-At the request of the provincial Government, next year the course will be available to 1500 teachers.  
-About 100,000 students throughout Catamarca were involved in project implementation.  
-Extending the course at all school levels enabled a consistent cross-functional programme for all school levels.  
-The course fostered research on the natural resources available at the local level, including the associated social and environmental impacts.

Number of attendees per town



Source:  
Asociación Civil Los Algarrobos.



-2004 graduates of the Teachers’ Training Programme.



## EMEC Programme

Minera Alumbraera annually grants a scholarship for local students and graduates. The European Mining Engineering Committee (EMEC) has established a nine-month mining and metallurgical training programme at four different European countries -including the Delft University of Technology (the Netherlands), Aachen (Germany), the London Imperial College (England) and the University of Helsinki (Finland).

### Place:

Catamarca.

### Direct and indirect beneficiaries:

Advanced mining engineering students and graduates from Universidad Nacional de Catamarca.

### Purpose:

Train local professionals in international mining practices.

### Minera Alumbraera's contribution:

Alumbraera supports the exchange of students between European and Latin American universities.

### Other community organizations involved:

This programme is academically managed by the Delft University of Technology through the Mining Engineering Department under Universidad Nacional de San Juan.



*“Though training in the latest mineral processing methods was the most important part of the programme to me, teamwork as well as my experience of living in a group of international students were additional benefits of this programme. I mean, training is as important as the experience of living in four different countries from widely differing cultures and meeting so many people.”*  
(EMEC Programme beneficiary Rodrigo Lencina, barbecuing by the Baltic Sea in Helsinki).



## “Reading is Fundamental” Programme

This programme encourages reading in children and teenagers, as part of their development and growth.

### Date and place:

Year 2004.

Town of Belén.

### Direct and indirect beneficiaries:

Over 3,000 children have participated in Reading Seminars, Tale Corners and National Reading Marathons.

### Purpose:

Encourage reading among the youngest through interesting literature thus introducing them into material other than the school books they are accustomed to.

### Minera Alumbraera's contribution:

Minera Alumbraera is committed to support this mission where books and publications are provided to schools and which allows many children to have their own books at home.

### Participation of other Institutions and the community:

The programme has been introduced in the Town of Belén thanks to the initiative of the Assistant Headmistress of “Ejército de los Andes” High School of such town. The organization managed by this teacher encourages this reading approach that works as a link with the community needs. Teachers, parents and students actively participate in the activities.

### Changes:

At present, the library has many books and received over 300 in 2003, which are now available to thousands of people.

- Automation and control laboratory, Helsinki Technical University
- Recycling and Mining Economics Course, Delft University of Technology (the Netherlands)
- Lencina's trip included a visit to Aitik open pit copper mine in Northern Finland
- Visit to mine sites in Laponia, in the Arctic Polar Circle.



## Other educational and cultural programmes

### Integral Museum of Biosphere Reserve (UNESCO):

-The company supports the cultural and productive development of UNESCO Biosphere Reserve of Laguna Blanca, in the Catamarca Puna, to strengthen traditional productive activities through the appraisal of their cultural assets. The museum mission -reporting to Universidad Nacional de Catamarca- is not only to display pieces but also to turn the site into a museum, reservation of vicuñas and typical flora.

### Training of emergency rescuers:

-The Safety Department of Minera Alumbraera is trying with students of different schools to make up a team of rescuers to act in emergencies. The initiative, supported by parents, teachers and students, has become a valuable learning experience and a way of integrating the community.

### Ecological lectures:

-This exchange is intended to create awareness among all stakeholders of the importance of environment protection.

### Traineeships:

-This working method is offered to students from technical schools and from Universidad de Catamarca.

Support to local researchers and writers for the publication of social, tourist and economic text books having a strong impact on the area.

- Reading Seminars, School No. 448, Santa María.
- Opening of Archaeological Museum in Laguna Blanca.

## Minera Alumbraera and the community





## HEALTH AND WELFARE PROGRAMME

AS PART OF MINERA ALUMBRERA COMMUNITY PROGRAMME, CONTINUOUS SUPPORT IS PROVIDED TO MORE THAN 80 LOCAL HEALTH CENTRES, 10 LOCAL HOSPITALS, 6 REGIONAL AND DISTRICT HOSPITALS AND HEALTH ASSOCIATIONS. ASSISTANCE INCLUDES MEDICINES, DISPOSABLE MATERIAL, MEDICAL EQUIPMENT AND CONSTRUCTION MATERIALS.

THE COMMUNITY PROGRAMME HAS FOCUSED ON HEALTH SINCE THE BEGINNING. FURTHER TO THE REQUESTS OF THE PROFESSIONALS RESPONSIBLE FOR THE HEALTH INSTITUTIONS, THE COMPANY HAS NOT ONLY PROVIDED MEDICAL SUPPLIES BUT HAS ALSO CHANNELLED THE CONSTRUCTION AND IMPROVEMENT NEEDS OF THE MEDICAL INFRASTRUCTURE.

### Institutions being supported:

Town	Local Health Centres	Local Hospitals	Regional Hospitals
Andalgalá	11	1	1
Belén	40	8	1
Santa María	23	1	1
Tafí del Valle	9	-	1
Catamarca Capital city	-	-	2

### Scope of support:

-Critical supplies: serums, antibiotics, antipyretics, corticoids, rehydration salts, eye drops, physiological solution, alcohol, disinfectants.  
 -Medical instruments: nebulisers, stethoscopes, thermometers, pressure meters, Philadelphia collars, stretchers, emergency equipment, high blood sugar meters.  
 -Disposable material: syringes, gloves, bandages, adhesive tapes, wooden tongue depressors, cotton, needles, reactive strips for diabetics.

### Supply of construction materials for remodelling, expansion and construction of health centres:

#### Expansion of Santa María Regional Hospital.

These works involve the expansion of the physician's offices, access to emergency and ambulance area. In this case, the company provided carpentry services and part of the cement necessary for the works.

#### Belén regional hospital.

Improvement of building and information technology equipment. Minera Alumbrera repaired two surgery rooms, delivery room and sterilization room. The hospital director had requested the company to perform such works, since the facilities fail to comply with the sanitary requirements for proper medical care. In turn, Alumbrera provided supplies for administrative areas such as a computer, medicine and disposable material to improve services.

The company also provided the construction materials necessary for the fence of the hospital building.

#### Safety for Andalgalá Regional Hospital.

The company provided supplies to this hospital to satisfy safety equipment needs. It also provided the means and resources necessary for local ambulance maintenance. Some professionals of this hospital are part of "Equipo Solidario de Andalgalá", that gives first-aid and prevention courses together with experts in Industrial Safety of Minera Alumbrera.



#### Hospitals in Catamarca Capital city:

-Regional Children's Hospital of Catamarca city. It is a teaching hospital specialized in children diseases. For this reason, the board asked for assistance to have communication systems for the lessons given to the professional staff. Alumbrera provided projection equipment, a screen and a tuner amplifier to contribute to teaching activities.

#### -San Juan Bautista Hospital.

The authorities of this hospital received a new donation from Minera Alumbrera for Teaching and Research, Emergency and Maternity services. Dr. Julio Soria, the Hospital Director, stated that the contributions would help to improve the service in such major areas. Minera Alumbrera provided projection equipment, blood sugar determination equipment, three manual aspirators, four pairs of two-way radios, twelve Philadelphia collars, two extrication collars and four sets of electrocardiography clamps.

#### -Maternity Service.

Special attention was given to the Maternity Service to generate a friendlier and more human atmosphere for women in labour. Interns have started a project to improve and refurbish the area so that mothers may have a nice environment, not different from that of private hospitals. For this purpose, the company provided 130 sheets, 40 bed covers, curtain rails, 40 light appliances for bathrooms, 120 m of fabric for curtains, 312 l of latex paint and 60 m of fabric for bed covers.





## ENVIRONMENTAL POLICY

MINERA ALUMBRERA IS COMMITTED TO MAINTAINING THE HIGHEST LEVEL OF ENVIRONMENTAL PERFORMANCE. BAJO DE LA ALUMBRERA IS OPERATED IN COMPLIANCE WITH STRICT SAFETY STANDARDS AND LOCAL ENVIRONMENTAL REGULATIONS, IN ADDITION TO THE REQUIREMENTS FOR MAJOR WORLD-WIDE MINING COMPANIES, THE COMPANY WORKS WITHIN THE FRAMEWORK OF SUSTAINABLE POLICIES THAT GENERATE BENEFITS FOR THE EMPLOYEES AND THE COMMUNITY.

ENVIRONMENTAL MANAGEMENT IS PART OF THE GENERAL MANAGEMENT SYSTEM OF A COMPANY THAT INVOLVES THE ORGANIZATIONAL STRUCTURE, LIABILITIES, PROCESSES, PRACTICES, PROCEDURES, AND RESOURCES TO DETERMINE AND PERFORM OPERATIONS WITH THE HIGHEST RESPONSIBILITY. ONE OF THE MAJOR FUNCTIONS OF THE ENVIRONMENT AREA IS TO CONTINUOUSLY IMPROVE OUR ENVIRONMENTAL PERFORMANCE, THROUGH THE CONTROL AND MINIMIZATION OF ANY POTENTIAL IMPACTS IN ORDER TO ACHIEVE A SUCCESSFUL MINE CLOSURE.

THE MOST IMPORTANT CURRENT PROGRAMMES IN THIS AREA ARE THE MANAGEMENT OF THE TAILINGS DAM, WATER QUALITY, MINE CLOSURE AND TREATMENT OF EFFLUENT FROM THE FILTER PLANT.

*Minera Alumbreira and the community*

## Objectives met during 2004:

- Completion of year-one field trials for waste dump and tailings dam capping.
- Completion of the PB23 stand-by pumpback well.
- Submission of the second update of Minera Alumbreira's Environmental Impact Report to Catamarca authorities.
- Implementation of the revegetation trials programme jointly with Instituto Miguel Lillo under Universidad Nacional de Tucumán.
- Geophysical survey of the Vis Vis and Tampa Tampa areas.
- Completion of the initial isotopic study of the Vis Vis basin.

## Objectives for 2005:

- Recalibrate the Campo Arenal and Vis Vis underground water model.
- Implement the ISO 14001 Standard at Minera Alumbreira's Filter Plant, Slurry Pipeline and Port Facilities.
- Survey local species and build a revegetation nursery.
- Complete the first biannual sampling trial for tailings dam and waste dump capping.
- Drill two monitoring wells and replace the two existing pumpback wells.

## Tailings Dam

The by products resulting from flotation is called "tailings" and is stored by gravity in the dam designed for such purpose, which only keeps solids and allows the water to drain. For such purpose, foundation drains have been installed. The dam was constructed over alluvial soil which, as it is highly permeable, allows the passage of water. The water drained from the dam is recovered through a drainage collection and pump-back system which returns water to the pump area, also located in the dam. From there, and through a system of pumps in an adjustable ramp, water is recovered to be reused in the process.

The dam has been designed in compliance with the standards of the International Committee of Large Dams (ICOLD). It has complied with the highest worldwide quality standards apart from having been approved by the provincial enforcing authorities. According to the specifications of this commission, the dam may tolerate the following extreme conditions:

- 6.5 Richter scale earthquakes, with a 0.53 g acceleration and an epicentre 20 km below the dam wall. For comparison purposes, our dam has a safety coefficient higher than water dams in San Juan, a province with high seismic activity.
- "One in a thousand year" storms: it can resist a storm of 240 mm in 24 hours although in the area rains are between 120 mm and 150 mm per year. The dam is subject to strict operational controls to ensure the proper operation of the entire system.



-Tailings dam water collection pump ramp.  
-Tailings Dam Supervisor Pablo Saguir operating pumping ramp valves.



## Water quality - Monitoring

One of the major environmental programmes is the monitoring and control of the water from the tailings dam. At present, the company has 10 pump-back wells, an additional standby well, two collection ponds and 25 monitoring stations. The efficiency of the pump-back system allows underground and surface water not to suffer changes in its chemical features. This is supported by the monitoring results of water quality performed by the Mining Department of Catamarca. These monitoring processes comply with the standards of the US Environmental Protection Agency (USEPA) No. 540 - 00 - 003.

In addition to regular monitoring, Minera Alumbraera performs a mathematical modelling of the tailings dam drainage that is updated every three years. Since it is a predictive tool, it is the basis for the action plan to ensure invariability of chemical features of the nearest basin (Vis-Vis - Amanao), by keeping the tailings dam drainage within the limits of the concession. If sulphate and heavy metals are considered as indicators, they have not suffered any variation outside the boundaries of the mine site. Water analysis is performed in the laboratory of the Filter Plant. Likewise, samples are sent to external laboratories to compare the quality of the own lab.



## Mine closure

Since the commencement of operations, the company has worked on a daily basis to achieve an environmentally friendly closure. To reduce the impact of operations, one of the major works is to avoid Acid Rock Drainage (ARD).

ARD is a natural phenomenon that may occur in dumps and tailings dams due to the interaction of materials with sulphurs exposed to the weather (air oxygen and rain). Throughout time, this can cause acid solutions. Both our tailings dam and dumps may generate ARD since they have sulphured materials. But ARD may be avoided if some of the factors mentioned are either eliminated or minimised.

For this purpose, Alumbraera has developed a preventative programme. The construction of dumps (waste material stockpiles) aims at encapsulating the materials with higher probabilities of generating ARD.

In addition, the closure programme involves covering dumps and the tailings dam with an inert material that prevents rainwater filtration. Test fields have already been developed with excellent results.

Minera Alumbraera has commenced closure planning works 10 years prior to closure. During 7 years of operations the design has been improved based on surveys and updated using the latest technology.

Minera Alumbraera's Revegetation Programme was also started in 2004. This programme is intended to restore the vegetation cover of the tailings dam and waste dump areas upon mine closure.

This is a wide-scope project since at the end of the mine life waste materials will no longer be disposed of at Minera Alumbraera waste dumps and tailings dam. The experience gained over the years will be applied.



-Water monitoring in Vis Vis River by officials from the Catamarca Mining Department.  
-Filter plant effluent control and analysis.

## Minera Alumbraera and the community

-Environmental Official performing geophysical activities in the Vis Vis Canyon.





### Treatment of effluents from the Filter Plant

At the Filter Plant located in the Province of Tucumán, the water from the concentrate pipeline is filtrated until 7% humidity is obtained. The water resulting there is processed in the Effluent Treatment Plant. It allows to reach drainage values complying with international and provincial regulations.



### Filter Plant Laboratory

Minera Alumbraera has a modern laboratory in the Filter Plant where chemical analyses of natural water, process water and liquid effluents are performed. It works as a support of key areas of the company such as Production and Environment. This lab has an outstanding policy in terms of the quality of the analytical data and services provided. Daily, monthly and biannually monitoring is performed to determine effluent quality (together with the enforcing authorities) to ensure strict compliance with the applicable rules.

### Minera Alumbraera ore processing

Most of the contained gold is free gold - i.e. not chemically dissolved in other minerals but as separate gold particles.

Though Bajo de la Alumbraera gold is composed of fine particles (sized from 20 to 100µ, as talc particles), a significant gold fraction may be obtained using gravitational methods, instead of reagents.

About 5% of Bajo de la Alumbraera gold is recovered through gravitational methods. The rest is fine gold that floats with copper and therefore remains in Minera Alumbraera copper concentrates.

Since gold has a higher specific gravity than other ores mined by Minera Alumbraera, it is separated from particles with lower density using centrifugal pumps. The resulting concentrate, containing about 400 g/tn of gold is a preliminary product. Then, it is transferred to the Gold Room to improve quality and obtain a dore gold bar.

Two products are obtained at the Gold Room: the final concentrate, which is then collected for dewatering and smelting purposes and tailings, which are sent back to the re-grinding circuit. No reagents are used in this process. Minera Alumbraera equipment uses physical principles to process and concentrate Bajo de la Alumbraera ores. No cyanide, mercury, chromium or other toxic substances are used in Minera Alumbraera processes. Minera Alumbraera high-purity concentrates (containing 27% copper, 25 g/tn of gold and small quantities of sulphur, iron and silicates) are widely required in international markets.



### Minera Alumbraera's Recycling Programme

**597,670 kg of unused materials were provided by Minera Alumbraera for the benefit of the local communities in 2004.**

Minera Alumbraera's recycling programme enables the responsible reuse of certain waste material that may not be sent back to Minera Alumbraera's process, for the benefit of the local communities.

The complexity of mining operations requires a number of waste materials, including wood, metal and rubber that may not be reused in the industrial process. Therefore, by virtue of Minera Alumbraera's commitment to sustainable development and environmental awareness, Minera Alumbraera's Waste Management System provides for the proper segregation of materials to be recycled. To provide an environmentally responsible solution, Minera Alumbraera has commenced a regular Material Recycling Programme in 1999. Under this programme, materials are available to local beneficiaries in order to improve and repair community facilities and public buildings (including playgrounds) as well as local houses and yards.

Minera Alumbraera is advised of the needs from neighbouring communities. Then, materials to be recycled are individually selected by each programme beneficiary at Minera Alumbraera's warehouse.

When entering Minera Alumbraera's site, each visitor is inducted on site safety and environmental matters and provided with the personal protection equipment required for such task. Visitors are also escorted by Minera Alumbraera's Security and Environment employees in order to ensure safety and are provided with meals at Minera Alumbraera's lunchroom.



## Event: Pipeline Incident

### Diagnosis:

Copper and gold concentrate spill as a result of a pipeline failure.

### Date and place:

-September 19 2004.  
-Close to Minera Alumbra's PS2, at Villa Vil, Andalgalá

### Other parties involved:

Catamarca Mining Department, Lab under Comisión Nacional de Energía Atómica (CNEA) from Mendoza, Drinking Water Committee, Villa Vil Community Association, National Mining Secretary -SEGEMAR.

### Summary:

On September 19 2004, Villa Vil community was concerned about a spill on Minera Alumbra's slurry pipeline to the Filter Plant in Tucumán. Villa Vil is situated 15km from Andalgalá and 80 km away from the minesite. The Villa Vil community then feared that, as a result, the Villa Vil river might be polluted thus risking the health of local inhabitants.

However, Minera Alumbra's emergency response procedure worked adequately: the spill was controlled in less than two hours' time. Furthermore, the CNEA assay results showed no contamination of drinking or irrigation water.

### Facts:

-The failure was promptly identified by Minera Alumbra's alarm system upon pipeline failure  
-Operations were immediately stopped and Minera Alumbra focused on the emergency response procedure.  
-Minera Alumbra team and equipment was promptly made available on site to avoid damages to the local people, soil, water and environment.

### Key Steps:

-90% of the spill material had been removed by noon of the following day.  
-The spill area was soon rehabilitated and the pipeline resumed operations.  
-The spill material was stored at a specific site in Minera Alumbra's pump station.  
-Even though Minera Alumbra assay results showed no contamination of drinking and irrigation water, water bottles were promptly provided by Minera Alumbra until CNEA assay results were available from Mendoza.  
-Even after the assay results confirming no local water contamination were available, Minera Alumbra continued to supply water to the local inhabitants.  
-90 m of pipe was replaced and Minera Alumbra pipeline was surveyed with good results.  
-From a corporate communications standpoint, Minera Alumbra management keeps Villa Vil community updated on an ongoing basis.



-Villa Vil inhabitants at the minesite.

## Water Assayers

- Minera Alumbra filter plant lab

- Catamarca Mining Secretary

- CNEA Lab in Mendoza

- Intemin Lab reporting to the National Mining Secretary

## Conclusions

- As an environmentally responsible company, Minera Alumbra follows the strictest environmental standards both at the local and international level. However, like any industrial operation subject to operational risks, Minera Alumbra was faced with an incident which turned out to be minor and, thanks to Minera Alumbra's pre-established procedures, required direct and ongoing assistance to the potentially affected community.
- Minera Alumbra's prompt and effective repairs as well as the ongoing reports to the competent authorities and to the local inhabitants minimized potential risks and showed that Minera Alumbra operations are subject to the highest safety standards and taking into account the local environment.

### Reasons:

Buenos Aires CNEA concluded that the pipeline failure was due to an existing outer mark on the pipe.

### Results: No Contamination

-Three hours after the incident, the first set of water samples was taken by Minera Alumbra to the filter plant lab. Assay results showed no contamination.  
-The assays results from the CNEA lab in Mendoza as well as those from the Catamarca Mining Secretary were similar: "Villa Vil drinking and irrigation water was not affected by Minera Alumbra's concentrate spill". This means that the allowable standards were not exceeded by the water samples. This was ratified by the members of the Villa Vil Community and Drinking Water Associations, some of whom had witnessed the transport of water samples.



*"By virtue of Minera Alumbra's corporate involvement and emergency response procedures, in the event of potential drinking water contamination, water is to be supplied until the incident is clarified. This standard was observed even after the assay results confirming no contamination were made available."*

Minera Alumbra's Pipeline Operations Superintendent **José Díaz**.



-Villa Vil inhabitants at the minesite after the pipeline failure: the local inhabitants are watching over Minera Alumbra's working practices.

**Minera Alumbra and the community**





## Safety

THE HEALTH AND SAFETY OF MINERA ALUMBRERA EMPLOYEES AND CONTRACTORS ARE A PRIORITY. TO THIS END, TRAINING COURSES AND WORKSHOPS ARE ORGANISED, IN ADDITION TO REGULAR AUDITS, TO ENSURE COMPLIANCE WITH OUR POLICY: THAT IS, TO CREATE AND PRESERVE AN ACCIDENT-FREE WORKPLACE FOR ALL THE PEOPLE THAT WORK IN THE PROJECT.

Minera Alumbreira exceeds beyond the health and safety requirements under the labour laws. An Annual Safety Programme has been developed and implemented by each department based on Minera Alumbreira’s key safety components. Such Programme must be consistent with Minera Alumbreira’s Health and Safety Policy, with the Safe Work Standards and with the safetygoals specified in Minera Alumbreira’s Annual Plan.

### Safety work

Minera Alumbreira’s general manager is ultimately responsible for Minera Alumbreira’s Safety Management and for updating Minera Alumbreira’s Health and Safety Policy on an annual basis. Safety is an individual responsibility of each Minera Alumbreira employee, contractor, consultant and visitor. However, programmes are implemented and supervised by departmental managers with the assistance of full-time advisors who support our operations. Following are the initiatives in this respect during 2004:

- Identifying significant safety risks.
- Baseline standards to avoid work-related accidents.
- Centralising statistics.
- Safety Manual for Contractors, Contract Administrators and Owners.
- Improvement of Minera Alumbreira’s Health and Safety Programmes.

### Statistics

Safety statistics are recorded on a monthtly basis by Minera Alumbreira Safety team. In addition to the severity rate, Minera Alumbreira’s safety performance measurements include the disabling injury frequency rate (DIFR), the lost-time injury frequency rate (LTIFR) and the total recordable injury frequency rate (TRIFR).

<sup>1</sup> Per million hours worked.

### Results for 2004

Achieve a LTIFR lower than 3  
Minera Alumbreira’s performance: 1.31

Type of lesion	2002	2003	2004
LTIFR	4.33	4.45	1.31
TRIFR	—	25.7	17.3

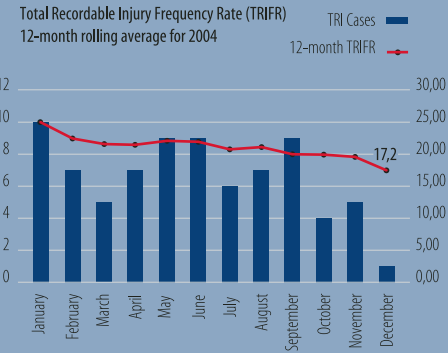
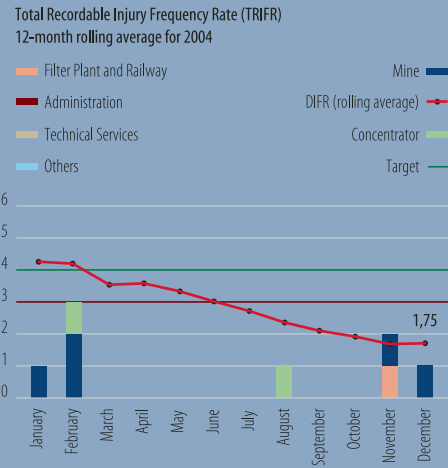
In corporate terms, the TRIFR for the Australian mining industry was 21.4 in 2004 and the LTIFR was 4.

### Health and Safety Goals for 2005

-Zero fatalities
-DIFR lower than 3.0
-LTIFR lower than 2.5
-TRIFR lower than 18

## Safety Record

In August 2004, Minera Alumbreira achieved a safety record: no disabling injuries were recorded for five consecutive months, which led to a total 2,000,000 man hours free of disabling injuries.



-Minera Alumbreira operators wearing personal protection equipment for work at heights.

Page 38:  
-(left) Luis LLanque and Edgardo Moreno inspecting the interlocking box during scheduled plant maintenance.  
-(right) Roberto Montero, Eduardo Bouhid and Leonardo Bachi at Bajo de la Alumbreira’s chemical Lab.

## Minera Alumbreira’s Health and Safety Policy

Our goal is zero injury. In our efforts to prevent injury and achieve outstanding safety performance, the following principles are applied:

- Managers are responsible for safety leadership: they are committed to create a safe workplace and demonstrate the safety standard expected for such area on an on-going basis.
- Working safely is a condition to employment: each employee has the right and the obligation to improve his/her safety skills and the responsibility of working safely for his own benefit as well as for the benefit of his family and his co-workers.
- The adequate risk management tools are used to identify, assess and control risks at the workplace as well as upon changes to equipment and processes, irrespectively of production constraints and deadlines.
- Safe work procedures are developed and strictly enforced to control risk-generating tasks effectively.
- Identifying an unsafe condition or the occurrence of a safety incident requires immediate investigation as well as individual and management action.
- Safety audits must be undertaken by managers.
- A regular health monitoring programme is essential to ensure the fitness and well-being of all Minera Alumbreira employees.

Workgroup and individual safety performance is measured and reported on an on-going basis. Regular and safety reporting is essential and requires that all employees be actively involved.





# SUPPLIER DEVELOPMENT

## MINERA ALUMBRERA PRIORITISES THE LOCAL PURCHASE OF GOODS AND SERVICES IN ORDER TO FOSTER REGIONAL DEVELOPMENT.

Since 1997, Minera Alumbraera has promoted a strong policy for local Supplier Development in Catamarca, which also applies to other provinces. For such purpose, it identifies opportunities in general, and in particular, it promotes the specific needs of mining that contribute to the potential development of other activities. This results from the proactive work with suppliers and with current contractors and local authorities.

The Programme has short and long term prospects. In the first case, the objective is to develop the local market for mining, although not exclusively. This is part of a sustainable project. In turn, the company trains suppliers to satisfy the needs of other mining companies in Argentina, and other industries, beyond the life of Bajo de la Alumbraera. Information on the sector needs is provided through training on mining requirements in terms of quality, price and service.

- Suppliers visiting Minera Alumbraera's materials and spares warehouse.
- Safety induction to visit Minera Alumbraera's concentrator.

In order to establish a closer relationship, the Administration Department has settled part of their team in Catamarca. Thus, they can achieve a better evaluation of the commitments undertaken by suppliers, and determine the growth of the local market supplying the company. An example of this is the increase in the growth trend of local purchases. Minera Alumbraera contributions to the province of Catamarca have exceeded \$8 million through the purchase of local services and goods.

At present, about 80 local suppliers are selling their products and services to mining companies in Catamarca, for instance, traders of the capital city, Andalgalá, Valle Viejo, La Paz, Santa María, Belén, Las Estancias, etc.

Since the beginning of the mining project, Alumbraera has performed activities to join current suppliers and potential buyers through meetings, and visits to the mine site.

### Minera Alumbraera and the community

## What is important for Minera Alumbraera in connection with suppliers?

- Quality of products and services
- Contribution to lower costs
- Integrity
- Respect for safety and environment
- Technical support
- Proactive behaviour
- Commitment

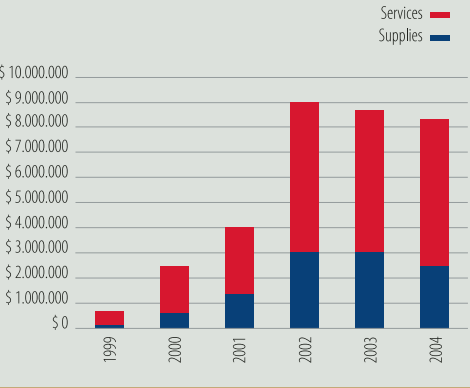


- Suppliers visiting the mine site to be briefed on industry requirements.

## Policies for the development of local suppliers

- Identify areas and opportunities in general business and mining.
- Define joint strategies with authorities to improve commercial and industrial development both at regional and national levels.
- Progressively increase domestic purchases.
- Establish links with local suppliers, manufacturers and representatives.
- Organise visits to the mine site to identify business opportunities.
- Cooperate with suppliers to reduce costs to achieve higher competitiveness.

## Purchases in Catamarca



## Number of existing suppliers







Source: Gente Magazine

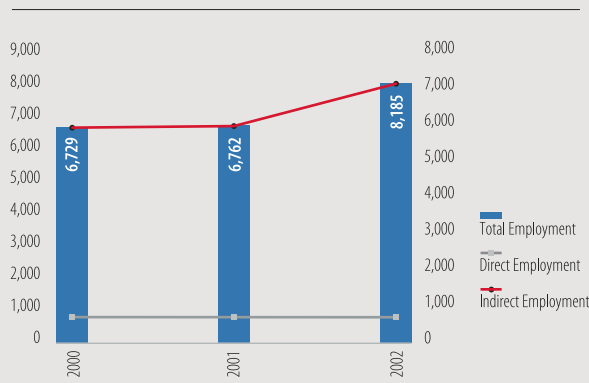
## HUMAN RESOURCES

MINERA ALUMBRERA WAS THE FIRST LARGE-SCALE MINING OPERATION IN ARGENTINA. IN ADDITION TO STATE-OF-THE-ART TECHNOLOGIES, MINERA ALUMBRERA HAS UNIQUE VALUE ADD: ITS PROFESSIONAL HUMAN CAPITAL AS THE KEY TO SUCCESSFUL MANAGEMENT AND THE ACHIEVEMENT OF BUSINESS OBJECTIVES.

### Manpower

1,800 people are now working at the Bajo de la Alumbrera site. Based on Bajo de la Alumbrera's economic impact report prepared by Universidad Nacional General San Martín, Minera Alumbrera's employment multiplier is 9.2 -this means that 8.2 indirect jobs are created in Argentina for each direct job. More than 4,000 direct jobs were created during the construction stage (from 1994 to 1997).

### Employment trends



In 2003 the total number of Minera Alumbrera direct employees was 1,066 and such figure increased to 1,085 in 2004.

- 50% of Minera Alumbrera employees from the Primary Impact Area (API) were previously unemployed.
- Minera Alumbrera accounts for 35% of the direct jobs created in API during the 90's.
- Minera Alumbrera total employment levels absorb more than 50% of the unemployed rate of each district.

-Concentrator operator Marta Aybar adjusting the filter cover at Minera Alumbrera's slurry pipeline pumpstation # 1.

### Minera Alumbrera and the community

### Regional education development

Minera Alumbrera implemented a major training programme on mining skills for the local people in order to ensure skilled labour at the local level for the future. As a result of Minera Alumbrera's expanded labour requirements, the number of local employees has increased in recent years.

In terms of origin, 86% of Minera Alumbrera employees came from the North Western Territories in 2003, with the remaining 14% from other provinces, as per the economic impact report prepared by Universidad Nacional San Martín in 2004.

Minera Alumbrera is strongly committed to employ local labour. Based on local labour requirements, Minera Alumbrera observes its employment policy and commitment with neighbouring communities.

Minera Alumbrera implemented active training initiatives to ensure local employment. This is closely related to Minera Alumbrera expansive labour requirements from 1998 through 2004.

### Training Programmes

Minera Alumbrera Human Resources, Safety and Provincial Affairs Management provide support and services throughout the organisation. Minera Alumbrera's strategic goals and policies are based on the development of its employees through Minera Alumbrera Training and Development Programme.

This ongoing initiative shows Minera Alumbrera's commitment to local education, including Minera Alumbrera's initiatives to ensure skilled labour at the local level for the future. 30% of Minera Alumbrera interns ultimately become regular employees.



### Minera Alumbrera's Re-Induction Programme

Minera Alumbrera's training initiatives include a re-induction programme to renew employee awareness on a regular basis. It is also intended to refresh their skills and commitments to safe working practices and environmental policies as well as the basic behavioural guidelines.

#### Objectives:

- Consolidate awareness of Human Resources Policies
- Work on the Environmental Management Policy
- Maintain our commitment to Minera Alumbrera's Health and Safety Policy
- Renew Minera Alumbrera's liaison with its employees at the psychological level
- Retrain Minera Alumbrera employees in fire and safe working practices
- Remind our employees of the adverse effects of alcohol and drugs and their impact on the workplace.
- Roll out Minera Alumbrera's Transport, Administration, Communications and Behavioural Policies.

### Leadership Programme

This programme sets the role and responsibilities of Minera Alumbrera Superintendents and Supervisors as strategic positions within the organisation.

#### Objectives:

- Train Minera Alumbrera supervisors and superintendents in order to ensure the leadership skills required to do their job efficiently.
- Provide Minera Alumbrera employees the skills required to undertake higher positions within the organisation
- Ensure the development of Minera Alumbrera workforce, including their leadership skills.

#### Programme Features:

This programme has been designed by Minera Alumbrera employees based on company needs and the local culture. The programme provides training, planning and communications tools for day-to-day employee management. Once the workshop is completed, an action plan is agreed by each employee with his/her supervisor, based on the skills and tools studied during the course (roles, coaching and performance management, planning, delegation, communications and safety observation).

-Safety Superintendent Luis D'Amico and Safety Supervisor Luis Llanque at a contractor training course in Minera Alumbrera.



## Minera Alumbra's Employee Development Programme

### Minera Alumbra's Internship Programme:

Development Programmes have commenced with Minera Alumbra, the Universidad Nacional de Catamarca and Universidad Nacional de Tucumán and also with local polytechnics in order that advanced students may obtain on-the-job training in a number of areas under the supervision of skilled Minera Alumbra employees.

In addition to 21 students from local secondary school from Santa María, Belén, Andalgalá, Hualfín and San Fernando del Valle de Catamarca, five university students from the Schools of Chemistry, Economics and Mining Engineering under Universidad Nacional de Catamarca and seven students from the Schools of Geology, Chemical Engineering, Information Technology and Bromatology under Universidad Nacional de Tucumán were involved in this programme in 2004.

Eighty-two students were involved in Minera Alumbra's Internship Programme in 2003 and 2004, with 34% of them ultimately hired by Minera Alumbra as regular employees.

The heads of agreement for the protocols regulating Minera Alumbra's Recruitment and Internship Processes were discussed between Alumbra and Universidad Nacional de Catamarca and Universidad Nacional de Tucumán in late 2004.



-Trainees under Minera Alumbra's Traineeship Programme for 2004.

## Minera Alumbra Apprenticeship Programme

Although Minera Alumbra has implemented an ample Internship Programme for local university and secondary school students ever since project development, some major changes have been made in the last two years with a view to improve results.

Minera Alumbra's Apprenticeship Programme commenced in 2004 based on the development of mine maintenance practices for a term of two years. This programme targeted at technical students (including goods and services production methods) of secondary schools from Belén, Andalgalá, Santa María and San José.

Although female employees work throughout Minera Alumbra, this programme specifically targeted new new female recruits. Theoretical and practical sessions with renowned international experts were made available to apprentices. Once this programme is completed, apprentices may be hired as Mechanics or Electricians for Heavy Mining Equipment.

A further Apprenticeship Programme will be launched in 2005 for the Processing Plant Maintenance area.

### Case 1

Pan American Cycling Champion Juan Benítez from Andalgalá is just one case in this Programme. This steadfast cyclist became a member of the Alumbra team once he completed an internship at the minesite, thus giving his first steps in the mining industry.

As a GEHO pump maintenance assistant, Juan put in practice the skills in mechanics learnt at technical school EPET #4 from Andalgalá. He reported "I passed the final secondary school examination thanks to the hands-on experience as an assistant mechanic gained at Minera Alumbra."

Pipeline Operations Superintendent José Alberto Díaz acknowledged Benítez' outstanding performance during the internship programme when a vacancy opened in the operations area. "His sports performance clearly shows his disciplined efforts to achieve his goals. This was clearly seen during the first week in his new position, when he responded successfully to our work practices, organisation and methods."

## Minera Alumbra's Human Resources Policy

- Minera Alumbra cares for its employees by maintaining a healthy accident-free workplace.
- Minera Alumbra fosters cultural diversity and encourages the on-going development of new skills to ensure equal work opportunities.
- Minera Alumbra fosters an integrated workplace. Employees and contractors from different provinces and of widely varying backgrounds and cultures live together at the mine site. Since different rosters are arranged to ensure on-going mining operations in a remote location, employees stay on site during their roster, far from their families, thus sharing their experience in a unique environment.
- Minera Alumbra Human Resources Policies are established, reviewed and updated by Minera Alumbra on an annual basis. These uniform and general policies are distributed and implemented through employee workshops.
- Minera Alumbra ensures fair treatment: Minera Alumbra's performance management and development policy applies to all Minera Alumbra employees. An informal biannual review and a formal annual review is undertaken to this end.
- Minera Alumbra provides the methodologies required to ensure that all employees perform their duties and achieve their objectives through Minera Alumbra's Leadership Programme. This programme is composed of workshops for Minera Alumbra managers, superintendents and supervisors in order that they develop the required leadership skills.
- Minera Alumbra values each employee, noting his/her unique skills and abilities.

## Mining Engineering Programme in European Universities

A scholarship has been annually granted to local mining engineering students and graduates for three years now by Minera Alumbra. Alumbra is the only local representative of the European Mining Engineering Programme (EMEC), a nine-month training programme on ore processing methods in four European universities.

This scholarship programme takes place at the Delft University of Technology as well as the Aachen University (Germany), the London Imperial College (England) and the University of Helsinki at Espoo (Finland).

As the enthusiasm of many young graduates was somewhat limited by English skills, Minera Alumbra will facilitate English training at the Language Lab of the College of Human Sciences under Universidad Nacional de Catamarca in order that these applicants duly sit for the TOEFL (a requirement for international scholarship programmes).

### Case 2

Rodrigo Lencina, a student from Catamarca, was selected to take the final training course in Mining Engineering abroad.

*"The result was very good, not only for the things I learnt but also for the new friends I met and all the beautiful places that I visited. It was an exciting experience that helped me grow and gain additional tools to do my job as a true professional".*

Lencina recommends this programme to his fellow students because it is an *"invaluable experience and uncertainties suddenly disappear if you are confident in your efforts"*.



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Bajo de la Alumbrera is one of the largest metal deposits in the world. The first large-scale mining project in Argentina ever is now a source of economic benefits and opportunities for Argentina and in particular for the communities in the vicinity of the mine site.

