



Ore deposits to promote the development of a country

A productive, industrial and logistics project that will diversify the productive matrix generating more wealth than any other export sector in the country and driving the development of new industries.



A major boost to national development



Five years ago Zamin Ferrous came to Uruguay looking for potentially valuable ore deposits, which had never before drawn enough interest from investors. After investing 170 million dollars in the design of the largest productive, industrial and logistics project in the history of Uruguay, we now believe that these deposits have a potential to drive the development of the whole country.

Once again, Zamin Ferrous mining group's strategy has proved fruitful: as with other projects in Brazil and Asia, we have made possible what other companies had dismissed, by applying more economic resources and knowledge.

It is not by chance that since 1960 several administrations and private enterprises had studied the Valentines iron ore deposits. Despite this interest, these projects never saw the light, either because the dimension of the resources was underestimated, the lack of public policies to enable them, or the lack of solutions to overcome infrastructure gaps.

Our employees and geologists completed 260,000 meters of drilling and proved the existence of resources 40 times larger than prior estimates, although low in iron content.

We have also allocated more economic resources and knowledge to the design of all the components -environmental, social, financial, productive, industrial and logistics - of the project. Our engineers have devised state-of the art solutions to offset infrastructure gaps and minimize the environmental impacts. An example is the underground pipeline, one of the few in the world with a return water pipeline that enables to reuse water, thus minimising consumption.

With the participation of 150 national and international experts, we have completed the submission of all studies required. And, with the help of prestigious international consultants we have prepared a Definitive Feasibility Study for the annual production of 18 million tonnes of iron ore concentrate over a period of 20 to 30 years, employing 1,500 direct permanent workers and creating 10,500 indirect jobs.

We have now completed the design of all the components required to advance the implementation of the project in a safe, sustainable, and environmentally responsible manner. We seek to be promoters of the economic, social and environmental wellbeing of Uruguay.

We feel confident that we will be able to build a Uruguayan project that will match the greatness of this country.

Pramod Agarwal
Founder
Zamin Ferrous

Aratirí discovered ore bodies 40 times larger than any known deposits



60
million tonnes

This was the volume confirmed by the studies undertaken until 1976 with the support of the United Nations Development Programme (UNDP). These studies completed a total of 6,000 meters of drilling.

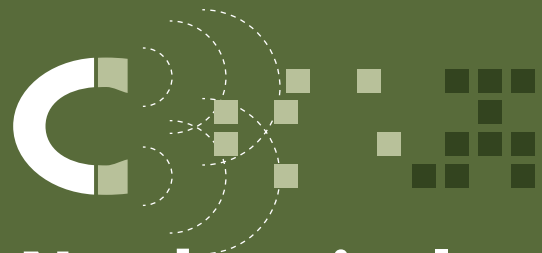


2.500
million tonnes

After 260,000 meters of drilling, Aratirí confirmed the existence of resources 40 times larger than any previously known deposits. The exploitation, beneficiation, export and eventual industrialization are feasible for a period of 20-30 years.

500 hectares
dedicated to ore bodies

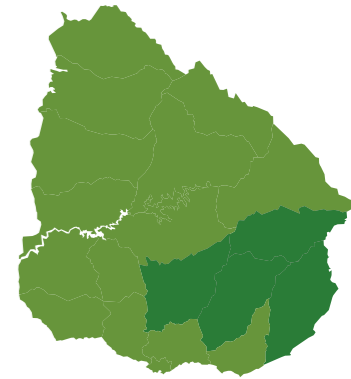
Considering only the area occupied by the mines to access the ore bodies, this represents 0.003% of the national productive surface: approximately 500 hectares. If we take into account also waste dumps and the areas for manoeuvring and logistics, it adds up to 4,300 hectares. The total area of the mining facilities, including the tailings dam (where rock particles are decanted), the buffer zones and the beneficiation plant, covers 14,505 hectares.



No chemicals

The process of separating the iron from the ore is done through crushing and magnetic separation only, without using chemicals.

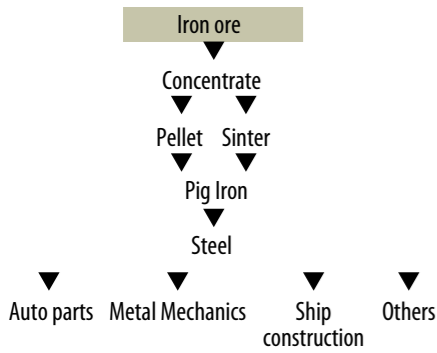
The largest productive, industrial and logistics project in the history of Uruguay



In very few years, Aratirí's Project will place Uruguay as a large worldwide producer of iron ore, with a position similar to that currently held by Sweden –although 20 times smaller than Brazil, the world's first exporter and second largest producer of iron ore. The required investment amounts to USD 3,000 million.

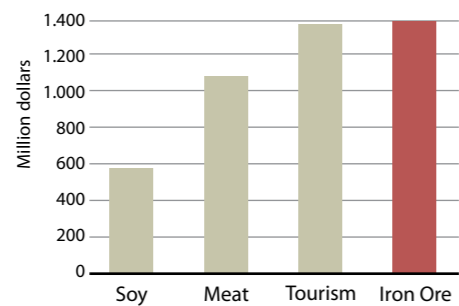
The Project occupies the provinces of Durazno, Florida, Treinta y Tres, Lavalleja and Rocha. The intense resource mobilization (work, capital, technology, infrastructure, knowledge) will drive the creation of new - decentralized, complementary and synergic - centres for development in the region.

Starting point for new industries



The exploitation, beneficiation and export of iron ore will comprise a period of 20 to 30 years. It will open doors for the development of other industries and will activate a region that today drives out manpower.

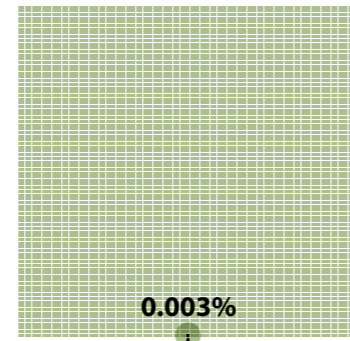
Main national export



Soy Meat Tourism Iron Ore Exports will average an annual volume of 1,400 MUSD. Iron ore will become the main export item, exceeding tourism, meat, soy, rice and dairy products.

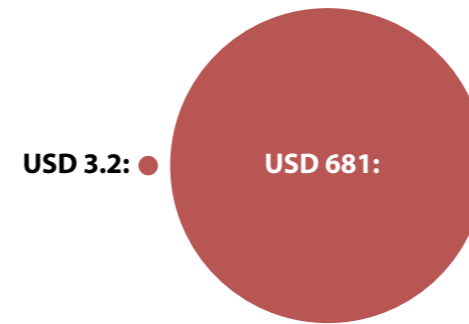
Source: Aratirí based on Uruguay XXI (2009) and MINTUR (2009)

500 hectares dedicated to ore



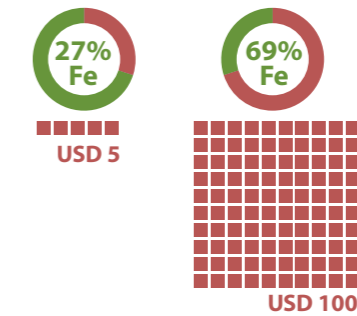
Considering only the area occupied by the mines to access the ore bodies, the project will comprise 0.003% of the national productive surface.

From MUSD 3.2 to MUSD 681



With the implementation of the Project the contribution of the area to national GDP will grow from MUSD 3.2 to MUSD 681 a year.

Industrialization in Uruguay will increase the value 20 times



The industrial process will increase the content of iron from 27% to 69%. The value of the ore extracted is 5 USD per tonne. Once the beneficiation process is completed, the value will rise to more than 100 USD per tonne.

10,500 indirect jobs

According to an independent study carried out by VIXION Consultants, the number of indirect jobs is estimated at 10,500.



95% national workforce

In a term of 5 years from project implementation, approximately 95% of the manpower will be Uruguayan.



Diversification of export destinations

The main markets for iron ore concentrate are China, Middle East and the United States.

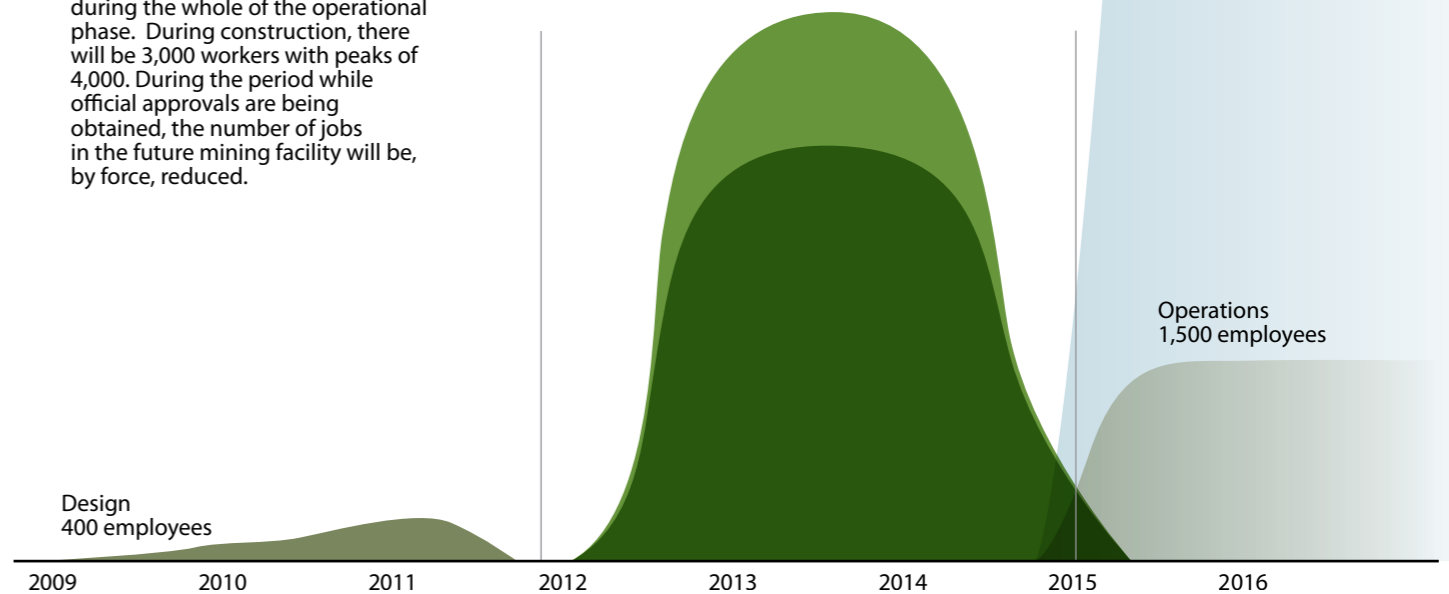


Creation of direct and indirect employment

1,500 direct jobs

1,500 workers will be employed during the whole of the operational phase. During construction, there will be 3,000 workers with peaks of 4,000. During the period while official approvals are being obtained, the number of jobs in the future mining facility will be, by force, reduced.

Construction
3,000 employees with peaks of 4,000



Aratirí in Uruguay

170 MUSD invested in research and development between 2006 and 2011

Background

1957-1963
The Uruguayan Institute of Geology and the University Department of Chemistry carry out geological, petrologic and mining studies

1960-1964
Western Knapp Engineering and other companies analyse the exploitation in Valentines.

1965
Under the leadership of Enrique Iglesias, the CIDE¹ elaborates a preliminary project for the exploitation of the iron ore bodies and the development of an iron and steel industry.

1967
The Ministry of Industry and Commerce creates an Assessment Technical Group for Iron Mining and the Iron and Steel Industry (TAMHIS).

1968
BROU² and OPP³ sponsor a Workshop on Investment Projects that analyses the exploitation of the Valentines iron ore bodies.

1972-1974
TAMHIS (Ministry of Industry and Commerce) performs drillings in Valentines and estimates a total of 47 million tonnes.

1972-1976
UNDP conducts geological studies and 6,000 meters of drilling, estimating 60 million tonnes.

Aratirí arrives in Uruguay

1960s onwards
Several national and international companies try to advance in the exploration, but they either fail or underestimate the amount of resources.

Since September 2009, approximately 140 meetings at a local, regional and national level were held with neighbours, counter-parts, authorities and the general public.

2007	2008-2009	2010-2011
<p>Aratirí is incorporated in Uruguay</p> <p>Obtains prospection permits</p> <p>10 specialists from Australia, France, Brazil, India and USA begin geomagnetic, cartographic and logistic studies</p> <p>Hires the first Uruguayan specialists with an environmental profile</p>	<p>Produces the largest geological study in the history of Uruguay</p> <p>Sets up the first office in Cerro Chato and its exploration headquarters in Valentines</p> <p>Aerial photographic survey of 9,000 hectares</p> <p>13 drilling machines 17 geologists 200 workers, specialists and scientists</p> <p>Under a 24-hour, 7-day a week shift regime, through a special agreement with MTSS⁴ and UNTMRA⁵</p> <p>Geologists from Uruguay and all over the world come to Valentines to conduct studies on the subsoil using state-of-the-art technology.</p>	<p>Design of the productive, industrial, logistic, environmental and social project</p> <p>Completes and delivers all the reports needed to apply for official approvals</p> <p>Mining Project</p> <p>Environmental and Social Impact Assessment</p> <p>Export Terminal Report</p> <p>Studies are developed on the basis of the standards defined by the International Finance Corporation – part of the World Bank Group.</p>
2007	2008	2011



The Valentines Iron Ore bodies
'constitute a virtual source for exploitation with a potential for continuous activity during thirty years'
Dr. Jorge Bossi -1970

The world needs iron to make STEEL

Iron ore is the main raw material to make steel. Nowadays about 50 countries in the world produce iron ore.

Steel is used mainly in construction, which stands for 58% of total production

South Africa, Canada, India, Sweden, Australia, Venezuela, Mauritania, Mexico, Russia and Brazil are among the 10 largest producers of iron ore, based on iron content.

Worldwide production of iron ore

Source: Raw Material Data Iron Ore, 2011



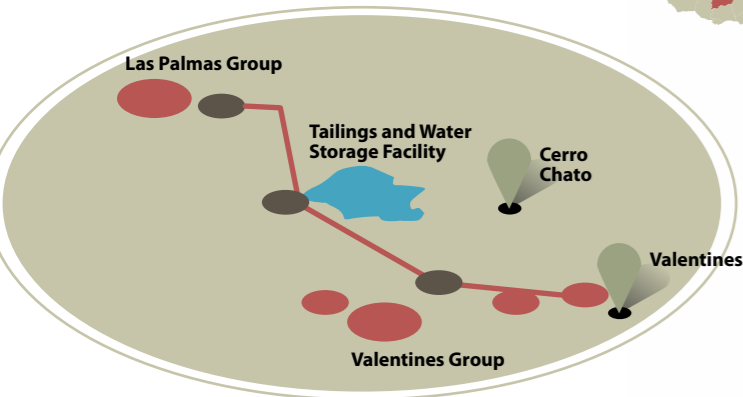
1 Investment and Economic Development Centre
2 Bank of the Republic of Uruguay
3 Planning and Budget Office

4 Ministry of Labour and Social Security
5 Uruguayan Metalworkers Union

From ore to the export of iron ore concentrate: 3,000 MUSD investment

1 Mining Complex

The five open pit mines will occupy an area of approximately 500 hectares.



The total area occupied by the various components of the project (mines, stockpiles, manoeuvring and logistics area) is 4,300 hectares.

The total area of the Mining Complex, adding the buffer zones, is 14,505 hectares.

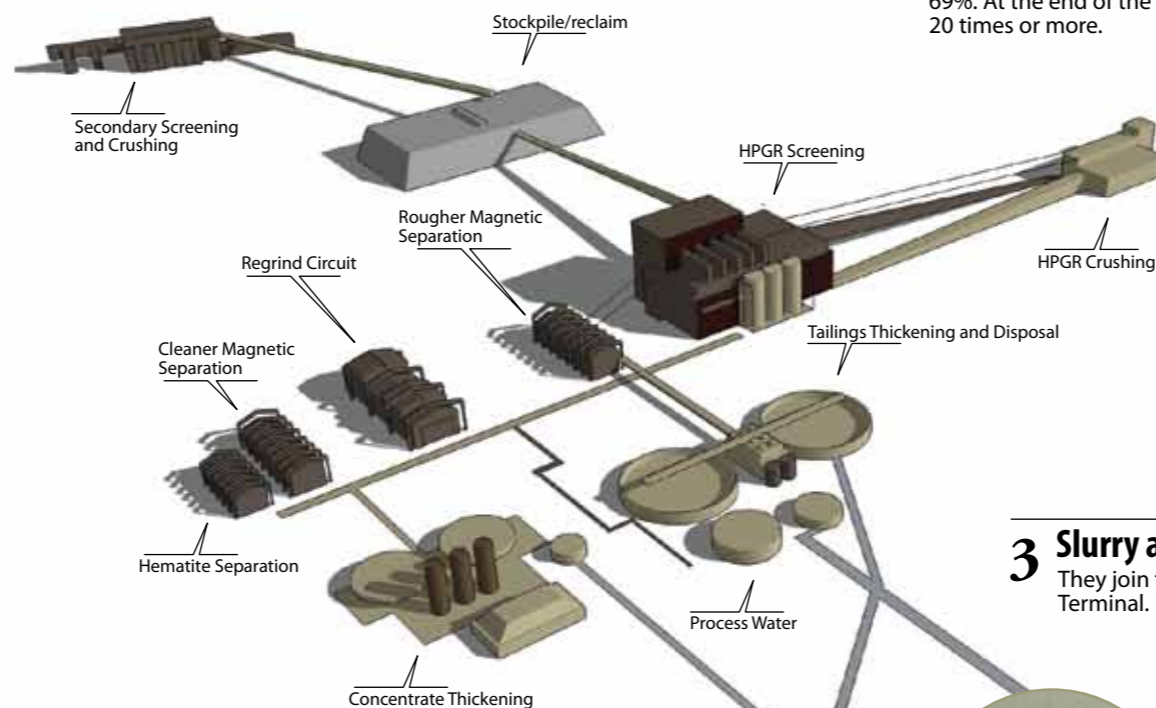
According to the plan, exploitation of the mines will be sequential, rather than concurrent.



The mines will be located in the provinces of **Durazno and Florida**: Las Palmas Group (Las Palmas) and Valentines Group (Maidana, Morochos, Mulero and Uria).

2 Beneficiation Plant

A part of the Mining Complex, the Beneficiation Plant is where iron is crushed, magnetically separated from the rock (without the use of chemicals), and its content upgraded from 27% to 69%. At the end of the process the value of iron is increased by 20 times or more.



It is located approximately 15 km from Las Palmas mine and the Valentines Group.

3 Slurry and Return Water Pipelines

They join the Beneficiation Plant to the Export Terminal.

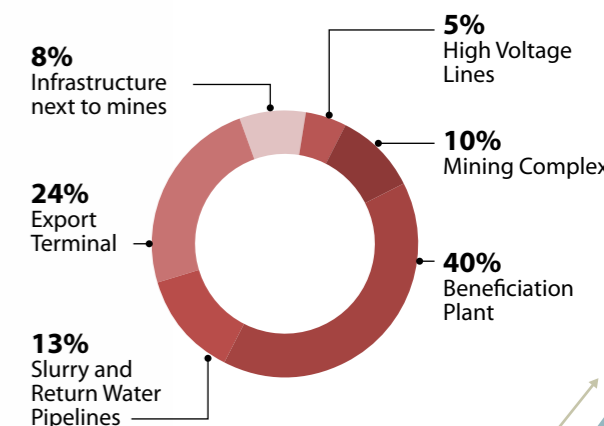
The Slurry Pipeline, constructed one meter below sea level (on average), transports the slurry, which is a mixture of iron ore and water.

Process Water is used to transport the iron concentrate to the Export Terminal, and tailings to the Tailings Storage Facility.

The Return Water Pipeline will carry the water back to the Mining Complex, operating in a close circuit so as to reutilise, and therefore minimise, water consumption.

Both pipelines (Slurry and Return Water) are built in parallel, underground, and across the provinces of Durazno, Florida, Lavalleja, Treinta y Tres and Rocha.

Initial Project Investment



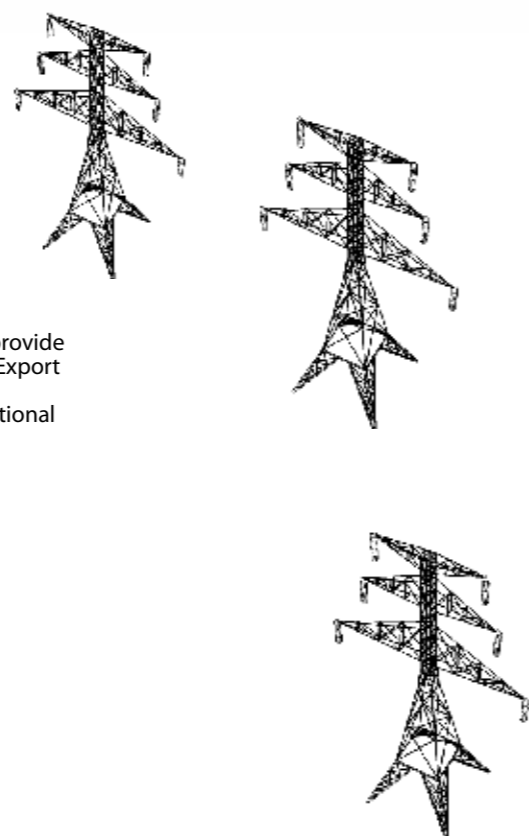
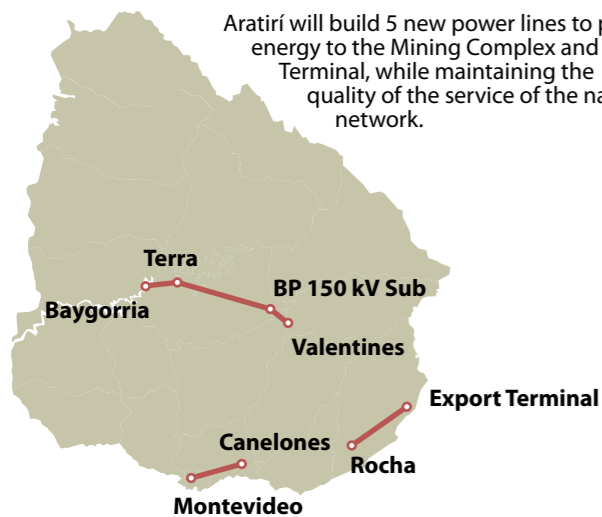
5 High Voltage Lines

These lines will improve the availability and stability of power supply in the east of the country.

The total consumption of the project will be of approximately 192 MW.

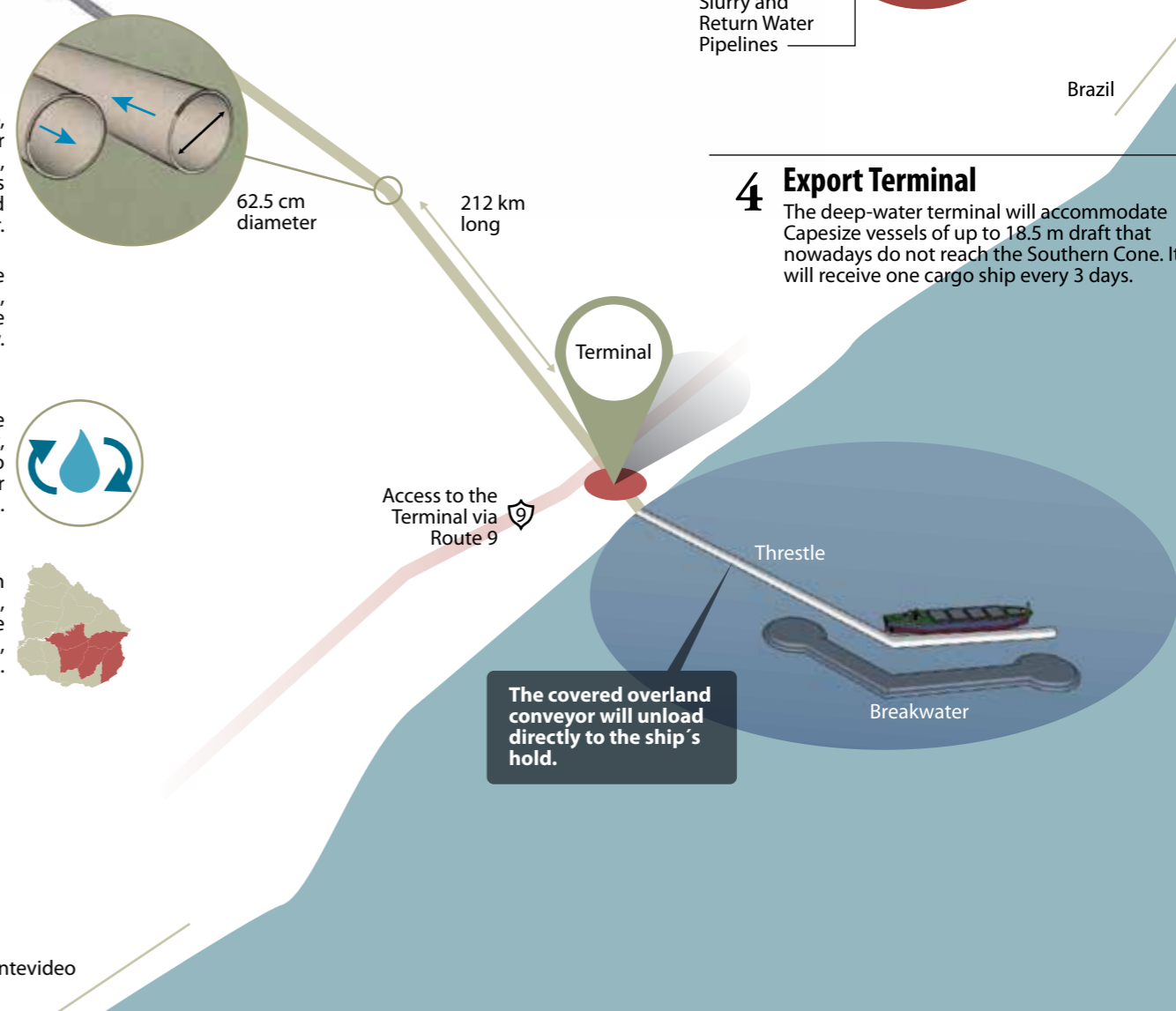


Aratirí will build 5 new power lines to provide energy to the Mining Complex and Export Terminal, while maintaining the quality of the service of the national network.



4 Export Terminal

The deep-water terminal will accommodate Capesize vessels of up to 18.5 m draft that nowadays do not reach the Southern Cone. It will receive one cargo ship every 3 days.



The covered overland conveyor will unload directly to the ship's hold.

The highest environmental protection standards

Aratirí's project has developed engineering, process, and logistics solutions that aim at avoiding and/or minimising the environmental footprint.

Likewise, it proposes management, mitigation and compensation measures to offset unavoidable impacts.

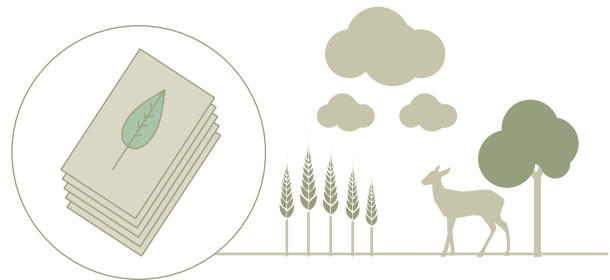
This information is fully compiled and can be found in the Environmental and Social Impact Assessment, submitted to the Ministry of Housing, Territorial Planning and Environment, responsible for evaluating these solutions and the measures proposed.

Evaluation and monitoring will be constant during the entire life of the project.

These activities are required as part of the Environmental Authorisation renewal process conducted every three years.

No significant impacts

The Environmental and Social Impact Assessment concludes that the environmental impact will be of no significance once the proposed prevention, mitigation and compensation measures are in place.



Permanent monitoring and control

With the appropriate controls from the State, the mining exploitation guarantees the protection of the environment.

Uruguayan legislation requires a "Prior Environmental Approval" and an "Environmental Approval for Operations" before construction, and subsequently, operations can commence. Additionally, environmental permits must be renewed every three years.

Each environmental renewal requires the revision and update of the environmental management plans. Furthermore, monitoring is constant.

This ensures that any alteration to the environment will comply with environmental legislation and any environmental authority regulations in force.

Prevention and the protection of the environment are the priorities.

In accordance with the national environmental policy, each and every one of the project components has been designed to prioritize the prevention of any harmful effects from the activities on the environment.

Protecting the environment is a priority for the project not only because it is required by the national environmental legislation, but because it is part of Aratirí's operating culture.

The environmental management tools allow acting proactively on the environmental impacts. These tools are applied in the following order of priority:

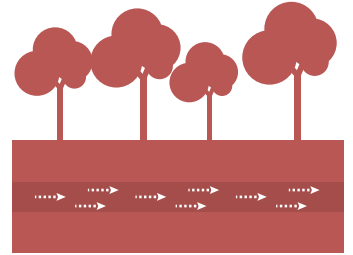


Engineering solutions to reduce the environmental impact

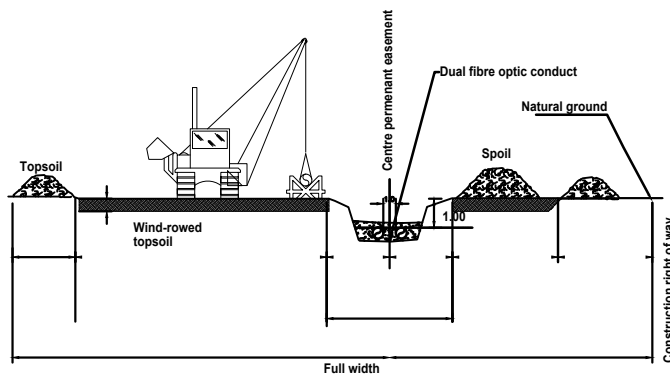
18 million tonnes of iron ore concentrate per annum (approximately the cargo moved in 2011 by both the Montevideo and Nueva Palmira Port) will be loaded through an Export Terminal with a 2.5 km trestle, and discharged directly into the ship's hold.

There will be no trucks, containers or other visible cargo transport in the national territory.

Transportation will be entirely underground, through a 212 km long, 62.5 cm diameter pipeline, similar to the oil pipeline that joins Montevideo with Jose Ignacio.

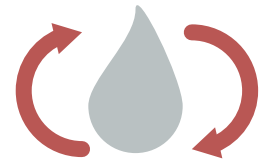


The Slurry and Return Water Pipelines will not affect the landscape once construction is finished



One of the few Return Water Pipelines in the world

To minimise water consumption, Aratirí's Pipelines will be among the few in the world operating in a close circuit, by means of a Return Water Pipeline. The full amount of water will be pumped back to the Beneficiation Plant to be reutilized over and over again.



The pipeline will transport the slurry -mixture of water and iron- to the coast, with gravity doing most of the work.

The full length of the pipelines route is underground, at a depth of approximately 1 meter.

Advantages of the Pipelines as a means of transport

- Reduce dust and noise emissions
- Avoid traffic accidents
- Do not require direct fuel consumption
- Do not overload or impact traffic
- Do not produce a visual impact
- Reduce in one third the energy consumption for cargo transport



Minimal impact on production and pipeline right of way

Once installed, the Slurry and Return Water Pipelines will not hinder any productive activity on the area except for forestry and construction, in a 50-meter wide area.

According to legal regulations, the owners of the land affected by the pipelines will receive a compensation, under the pipeline right of way regulations, throughout the entire life of the project.

The Environmental and Social Impact Assessment covers all the possible impacts

Magnetite exploitation has an environmental advantage that no other metallic mineral has: thanks to its magnetic properties, it is the only mineral that can be extracted by means of crushing and magnetic separation.



How will the Mining Complex affect the landscape?

The topographical change and the landscape modification in the area of the Mining Complex will be moderate.

The following simulation shows the current view of Las Palmas hill and the view once the mine is operational.



How will noise level be modified during operations?

- It has been demonstrated that noise levels will comply with the established regulations for rural environments.
- To ensure full compliance with regulations, vegetative barriers and partial closing of the Beneficiation Plant will be in place.



Will the agricultural and livestock production be modified?

The mining activity proposed by the Valentines project will not modify the agricultural and livestock matrix of the country.

National agricultural and livestock activities occupy approximately 16,400,000 hectares, while the Mining Complex, including the buffer zones, occupies 0.09% of that area: 14,505 hectares. Considering only the area occupied by the mines to access the ore bodies, that percentage drops to 0.003%.

Will flora and fauna be affected?

There will be no significant impact on the flora or the fauna by any of the components of the Project.

The prevention and mitigation measures of the impacts over the vegetation include (among others): minimizing vegetation clearing when possible, performing staged vegetation clearing, organic soil conservation for later use and re-vegetation.

These measures will also minimise impacts on the fauna living in these habitats.



How will air be affected in the Mining Complex?

Activities in the Mining Complex and Beneficiation Plant will comply with national standards for air quality conservation (GESTA-AIRE, 2005).

Additionally, mitigation measures will include:

- Water dust-suppression or paving of roads
- Dust control equipment
- Speed limits
- Vegetative barriers



Will water quantity and quality be affected in the area of the Mining Complex?

Regarding the quality of superficial water, the Project warrants full compliance with Decree 253/79 during the full Project lifecycle, under all possible scenarios.

Water will be managed in a closed circuit composed by a tailings storage facility, a water storage facility, a dewatering plant in the Export Terminal, and a Return Water Pipeline. This system allows water recycling and significantly reduces the amount of water used in the process.



How will the Slurry and Water Return Pipelines impact Rocha's Palm tree area?

The areas of high concentration of Butia Palm trees will be avoided by the Slurry and Water Return Pipelines. Those specimens that are intersected by the pipelines will be either transplanted or replaced. Mitigation and management measures guarantee a larger number of Palm trees once the construction of the pipelines is finished.



Closure Plan foreseen since day 1

The Closure Plan and the Post-closure Programme – conceived from the beginning of the project – aim at preserving the environment and attaining a sustainable development of the areas in which the components of the project operate.

The Plan includes the rehabilitation of the affected areas and demolition and/or elimination of parts of the infrastructure that have no future purpose (Beneficiation Plant, dewatering plant at the Export Terminal).

Aratirí will create a fund at the beginning of operations to guarantee the capital for the closure and post-closure activities.

Impacts for landowners in the area of the Mining Complex

What income will beneficiaries receive from Production royalties compared to current production?

The mining activity will generate income several times greater than that of livestock or forestry.

According to the Mining Code, the royalty destined to the surface owners is 2% of FOB exported value, to be distributed among beneficiaries. This amount is estimated in 28 MUSD per year.

The economic compensation that corresponds to royalties is several times higher than any other type of income, be it from forestry, agriculture or livestock. In the nearby areas of the Mining Complex, not covered under the royalty or occupation rights, there will be no changes in the use of the land generated by the mining activity, and there will be no impact or displacement of the current livestock or agricultural activity.

Social Management Plan and Corporate Social Responsibility

Aratirí has implemented a series of programmes aiming at reinforcing the social and environmental sustainability of the Valentines Project.

Local development and social investment programme

It introduces social responsibility guidelines for the Project. It includes 'seed' loans to promote the development of small local businesses. It will encourage the generation of knowledge, the development of research centres and the promotion of partnerships between universities and the productive area.

Local employment programme

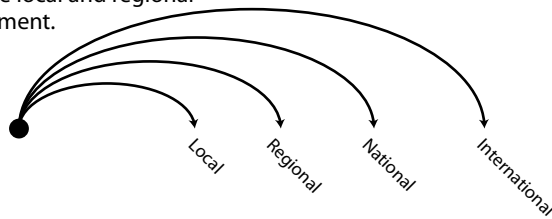
It seeks to manage the employment requirements of the project so as to generate benefits to the area of social influence, avoiding negative impacts. The policy is to prioritize local and regional employment.

Local procurement programme

It seeks to activate the local, regional and national economy in a sustainable manner by creating supply chains to cater project needs.

Participatory environmental management programme

It seeks to positively involve society in the project's environmental management programme. An open policy in regards with information management will facilitate the participation and control of society in an organized manner.



Land access and purchase programme

It describes the legal mechanisms to access the affected lands, avoiding negative impacts and providing the families with better opportunities.

Communication and consultation programme

It seeks to establish mechanisms that guarantee the transparency and good practices of the Project. Likewise, it focuses on building two-way communication channels ensuring society access to information related to the Project, while responding to their concerns.

Claims processing programme

It is a tool to receive and answer public queries, concerns and communication requests from the community or other stakeholders. This process will be systematic and documented.

Social closure programme

It states the measures planned to accompany and re-direct social stakeholders in the pre-closure stages of the mine. Closure is planned since the beginning of operations so as to promote the development of alternative productive activities.

Environmental and Social Impact Assessment



Who carried out the Environmental and Social Impact Assessment?

The study was led by Aratirí, with the collaboration of a team of 150 national and international consultants from the following companies:

- Ausenco Vector
- Burson y Marsteller
- CIFRA González Raga y Asociados
- CSI Ingenieros
- EcoMetrix
- Ecotech
- IGS Ingesur SRL
- Induser
- LATU
- Maxxam Analytics
- ODI
- Social Capital Group
- Tres Escalas
- Universidad Católica
- Universidad de la República
 - Facultad de Ingeniería
 - Instituto de Mecánica de Fluidos e Ingeniería Ambiental
 - Facultad de Ciencias
 - Instituto de Ciencias Geológicas
 - Departamento de Evolución de Cuencas
 - Facultad de Medicina
 - Hospital de Clínicas
 - Departamento de Salud Ocupacional
- Vixion Consultores

Is the Environmental and Social Impact Assessment a final document, or are there any possibilities of making changes?

The Environmental and Social Impact Assessment is the basic document, the starting point of an iterative process of queries and adjustments with DINAMA (National Environmental Bureau, Ministry of Housing, Territorial Order and Environment).

The process includes public hearings, in which citizens can pose their questions and concerns.



Zamin Ferrous

Zamin Ferrous is an independent mining group registered in Jersey. It has offices in Sao Paulo (Brazil), Montevideo (Uruguay), and Dubai (UAE), and representatives in London (England) and Zug (Switzerland). It has a solid portfolio of iron ore projects in Latin America: Zamapá (Amapá, Brazil), Susa (Rio Grande del Norte, Brazil), Greystone (Bahía, Brazil) and Valentines (Uruguay). In 2010 it developed and sold the second 50% of the Bamin Project (in Bahía, Brazil) in USD 735 million.

The strategy of the company is to identify projects that have received little investment from the mining industry in the past and perform important investments to develop them further. A key aspect of Zamin Ferrous is that infrastructure, logistics and marketing of the product must have the support of the communities and national governments.

Aratirí

Aratirí is a company created by the Zamin Ferrous group, dedicated to prospection, exploration, extraction, beneficiation and exportation of iron ore in Uruguay. The company has a high level of commitment towards society and the environment, mainly with those directly involved in the project, not only the workers, but also the inhabitants of the area. The project is based in the concept of responsible mining, using the latest technology available and under the supervision of the best professionals in the area at an international level.

Mr José Mujica
President of Uruguay

‘Mining is criticized because societies become accustomed to living on an easy income, and when the mineral runs out, only despair remains. But there are societies, like the Norwegian, that have had the wisdom to transform that wealth into investment, and when these resources are depleted, they have a richer and more sustainable country.’

Channel 10, *Subrayado*, June 27th, 2011

‘I want the extra USD 400 or 500 million that Aratirí would generate each year to be turned into investments that will yield their own income.’

Channel 10, *Subrayado*, June 28th, 2011

Danilo Astori
Vice-president of Uruguay and President of the General Assembly

‘Aratirí’s Project could be fundamental to contribute to the change in the productive matrix of the country. We often complain because we are still an agricultural and livestock country, because we always produce the same things with no added value. Now we have the opportunity to dramatically change the productive matrix of the country and add value, because Aratirí is not just a project to export raw material, it is looking to add value to the extraction of the raw material.’

Channel 12, *Telemundo*, June 25th, 2011

Eng. Roberto Kreimerman
Ministry of Industry, Energy and Mining

‘The first contribution of the mining industry is the generation of wealth. We are working to establish an industry that, while being extractive, will drive the development of other investment projects, aiming to generate additional income from productive activities and service areas. This income [which comes from non-renewable sources] will be placed in a fiduciary fund that assures intergenerational solidarity.’

Construction Day supplement, *El País* newspaper, October 2011



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