

— 2015 —

# SUSTAINABILITY REPORT



ANTOFAGASTA  
MINERALS



# ABOUT THIS REPORT

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*Welcome to our ninth annual Sustainability Report, which complements the Group's Annual Report. Here we summarise our strategy, priorities and performance for the most material social and environmental issues for our business and stakeholders.*

The Report focuses on the topics of material interest to Antofagasta Minerals and their stakeholders in accordance with the Global Reporting Initiative (GRI) Guidelines, in its G4 version, and its Mining and Metals Supplement.

The information presented here deals with the management of the Group during 2015 and includes data from previous years for context, together with most important events up to February 29, 2016.

This Report considers Los Pelambres, Centinela and Michilla mining operations, in addition to the Corporate Centre. As relevant, the Report also includes quantitative information on Antucoya, which began production in September 2015. It does not include information about the performance of Zaldívar which has only been operated by the Group since December 2015 following the acquisition of 50% of this property from Barrick Gold.

This Report has been verified by PricewaterhouseCoopers who also verified its compliance with the principles of the International Council on Mining and Metals (ICMM). Information concerning emissions of CO<sub>2</sub> was verified by SGS, an international company specialising in emissions testing.

The Report has been prepared by the Antofagasta Minerals Public Affairs Department in consultation with other key departments within the Group. The Public Affairs team was responsible for collecting and validating the information reported. This Report takes into account the advice of external experts for drafting and verification.

This document is a translation of the original Sustainability Report, which is in Spanish.

***This report has been prepared in accordance with the GRI - G4 Core reporting option.***



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**ICMM**  
International Council  
on Mining & Metals

# TABLE OF CONTENTS

## 01

### INTRODUCTION

Letter from the CEO / 2

Interview with the Board's Sustainability and Stakeholder Management Committee's Chairman / 3

## 02

### ANTOFAGASTA MINERALS

Our operations / 4

Overview of our operations / 6

Distribution of generated value / 8

## 03

### MANAGEMENT APPROACH

Business strategy / 10

Sustainability, governance and management / 14

Ethics and human rights / 20

Sustainability goals / 24

## 04

### MATERIAL ISSUES

Relationship with stakeholders / 26

Safety and health / 29

Employees / 34

Contractors and suppliers / 38

Communities / 40

Environmental management / 52

Water / 54

Climate change / 58

Energy / 61

Mining waste / 63

Air quality / 66

Biodiversity and heritage / 69

Mine closure / 71

## 05

### APPENDICES<sup>1</sup>

Verification Report / 74

ICMM Principles / 75

GRI G-4 Content Index / 76

Materiality Analysis / 81

The key sustainable performance data / 82

<sup>1</sup> Available only in the pdf version. Download from [www.antofagasta.co.uk](http://www.antofagasta.co.uk) or [www.aminerals.cl](http://www.aminerals.cl)



## LETTER FROM THE CEO

Iván Arriagada

**We have the dual challenge of achieving higher levels of efficiency and lower costs, in an environment far more sensitive to the social and environmental impacts of mining. This opens up new opportunities to be more efficient in the use of natural resources and more proactive in promoting the opportunities that mining brings to the regions in which we operate.**

Antofagasta Minerals is the largest non-state mining group in Chile. We are a young and growing company committed to the development and future of our employees, communities and regions where we operate. We know mining is a major industry for Chile and we believe that sustainable mining is essential. To achieve this, we rely on our extensive experience in the development and operation of mine sites, in engaging with our stakeholders and in our capacity for innovation and continuous improvement.

The year 2015 was a difficult year because of the decline in copper prices and the fatal accident that cost the life of a worker. However, we also realised important achievements: we consolidated the safety and health framework; Antucoya began operating; we acquired 50% of Zaldívar; we completed the environmental studies for the Centinela second concentrator project; we took significant steps to resolve the historical conflict with the Caimanes community and we put Michilla on care and maintenance without environmental or social incidents. In addition, we were quick to adjust to the new market conditions and our Cost and Competitiveness Programme generated savings to partly compensate for the combined impact of the decline in commodity prices.

We consider that the current downturn for global commodity prices may last for several years. In Chile, we also faced a rapid increase in operating costs over the last few years. Thus, we have the dual challenge of achieving higher levels of efficiency and lowering costs, in an environment far more sensitive to social and environmental impacts. However, we think this challenge also offers new opportunities to become more efficient in the use of natural resources and more proactive in enhancing the opportunities brought by mining to the regions in which we operate. This is why we are innovative in the way we act. We focused on the incorporation of clean energy into our operations with 47% of the energy for Los Pelambres coming from renewable sources in 2015. Also, 45% of the water we use is seawater. We also

developed new standards for the management of climate change and biodiversity. Our new approach is most evident in the new local engagement framework that has refocused the way we interact with the communities of the Choapa province.

In 2015 we completed 50 meetings, with 3,600 neighbours, which allowed us to identify a series of public-private initiatives to support the sustainable development of the Choapa province. Applying the same principles, we were able to peacefully resolve a protest triggered by the drought and agree on a works plan that was reflected in the Salamanca Agreement. We also started dialogue with the community of Caimanes which culminated in a vote whereby 58% of residents were in favour of reaching an agreement with the Company, or 92% of those that actually voted. In 2016 we want to extend the principles of this framework to our operations in the Antofagasta Region.

I want to thank our stakeholders for their trust and our employees for their commitment. I encourage them to continue working with us to achieve our goals, concentrating all our efforts on complying with our safety, sustainability and cost plans.

**Iván Arriagada**  
CEO  
Antofagasta plc





## INTERVIEW WITH THE BOARD'S SUSTAINABILITY AND STAKEHOLDER MANAGEMENT COMMITTEE'S CHAIRMAN

Ramón Jara

Ramón Jara has been a Director of Antofagasta Minerals since 2003 and is the Chairman of the Sustainability and Stakeholders Management Committee. Mr. Jara also oversees the Fundación Minera Los Pelambres and is a Director of the Fundación Andrónico Luksic A.

### **The Sustainability and Stakeholder Management Committee met seven times in 2015, more than ever before. Why?**

The Directors are well aware that the Group is facing significant social and environmental challenges. These are becoming more complex as our operations grow and international standards become increasingly stringent. Our own expectations are higher as well. That is why we became members of ICMM, committing ourselves to meet higher sustainability standards. Through this Committee, the Board is continuously supervising the Group's approach, models, standards and performance in the areas of safety and occupational health, stakeholder engagement, communities, communications and environmental stewardship.

### **Why did the Committee recommended the incorporation of human rights into the Code of Ethics and induction courses for new employees?**

We realised that it was necessary to make a more explicit commitment to upholding human rights, which this Group has always respected. We already had sound practices, but these needed to be supported with explicit policies to help ensure compliance.

### **Which were the Committee's key activities in 2015?**

Our first priority was to conduct a full investigation into the causes which led to the fatal accident that cost the life of a contractor, as well as reviewing all reported potential high risk accidents and incidents. We reviewed the social and environmental risk assessments and mitigation measures for the closure of the Michilla operation and for the development of the Centinela and Los Pelambres projects. We analysed the operational response and support to the community after the September earthquake. We supervised the fulfilment of the commitments entered into with ICMM. We monitored progress and achievements in relation to the new community engagement model in the Choapa Province and we supervised the process of dialogue with the community of Caimanes.

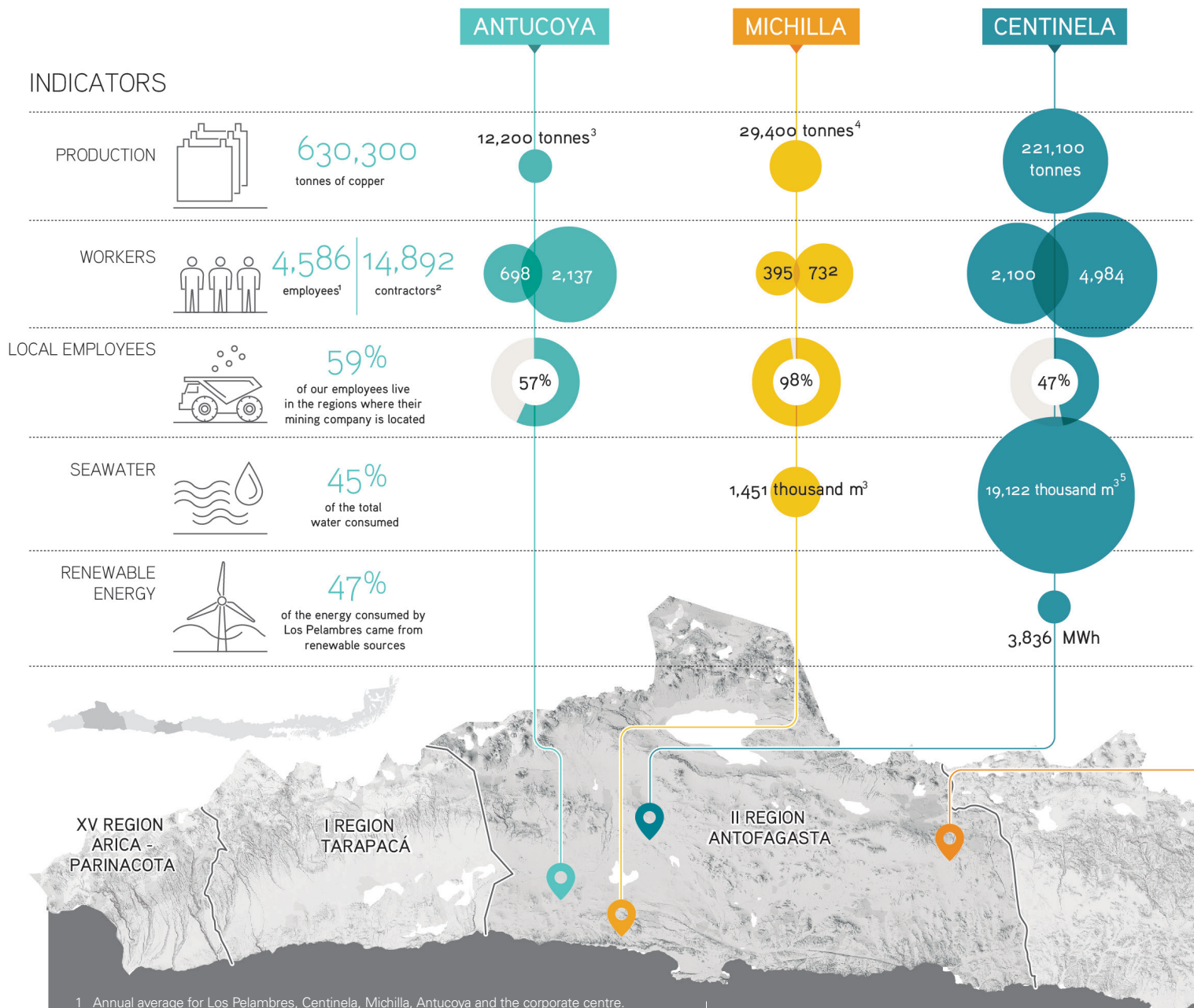
### **What are the priorities of the Group in terms of sustainability?**

The first priority remains safety and health: we aim to eradicate fatal accidents and environmental incidents. In addition, we will continue to build on the new local engagement framework we started at Los Pelambres to make a more significant contribution to the sustainable development of the regions in which we have operations. Now we aim to take the same principles – engagement, transparency and synergy with the other stakeholders – to other communities in the Antofagasta Region.

# OUR OPERATIONS

## Antofagasta Minerals

During 2015, Antofagasta Minerals operated four companies: Los Pelambres, Centinela, Michilla and Antucoya. From 1<sup>st</sup> December 2015 the Group became operator of Zaldívar Mine, which is jointly-owned with Barrick Gold Corporation.



1 Annual average for Los Pelambres, Centinela, Michilla, Antucoya and the corporate centre. Zaldívar's 971 employees were not included.

2 Annual average for Los Pelambres, Centinela, Michilla, Antucoya and the corporate centre. Zaldívar's 1,531 contractors were not included.

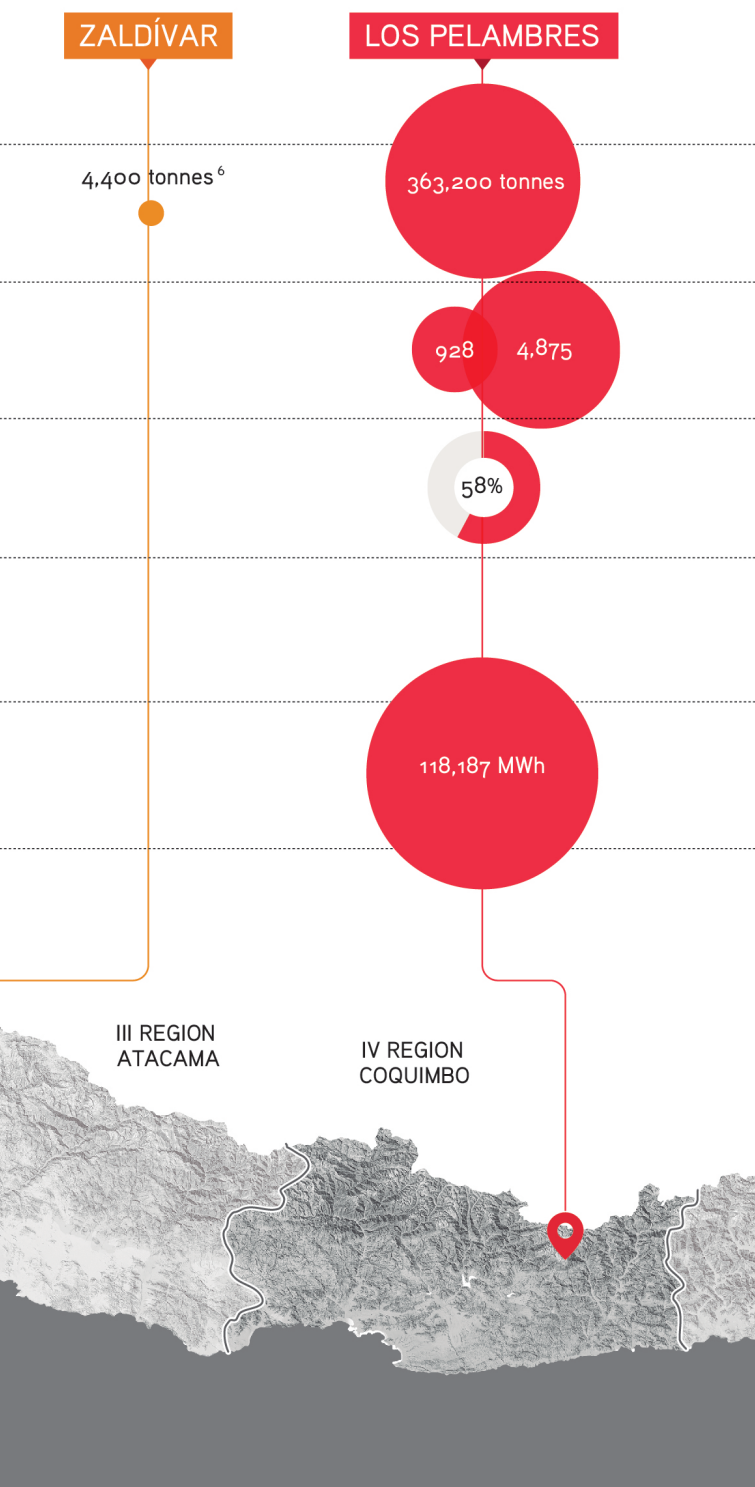
3 Antucoya started production in September 2015.

4 Michilla ceased operations in December 2015.

5 Only in Centinela Cathodes.

6 December production attributable to Antofagasta Minerals.

➔ **More information** on products, markets, processes and turnover can be found at [www.aminerals.cl](http://www.aminerals.cl) and in the Annual Report 2015, available at [www.antofagasta.co.uk](http://www.antofagasta.co.uk).



## Who we are

### Market position

Antofagasta Minerals operates the Los Pelambres, Centinela, Michilla and Antucoya mines. In 2015 the Group acquired 50% of Zaldívar, from Barrick Gold Corporation. The acquisition completed in December, when the Group became the operating partner.

Antofagasta Minerals seeks to expand its geological base through exploration in Chile and other countries. The Group also has interests in energy assets in Chile.

Antofagasta Minerals is a subsidiary of Antofagasta plc, which is listed on the London Stock Exchange and is 65% owned by the Luksic family.

The mining division generated 96% of Antofagasta plc's operating profits in 2015.

### Products

Copper concentrate and cathodes, in addition to the by-products molybdenum and gold.

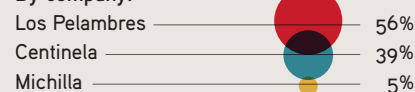
### EBITDA 2015

US\$832.3 million

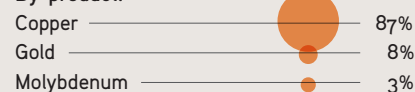
### Revenue 2015

US\$3,278.5 million

#### By company:



#### By-product:





# OVERVIEW OF OUR OPERATIONS

## Antofagasta Minerals



### LOCATION

#### Los Pelambres

Coquimbo Region, province of Choapa.

#### Centinela

Antofagasta Region, 21 km from the village of Sierra Gorda. Centinela has a ship loading facility at Caleta Michilla.

#### Michilla

Antofagasta Region, 110 km north of the city of Antofagasta, and 25 km from Caleta Michilla, and the community of Mejillones.

#### Antucoya

Antofagasta Region, 125 km northeast of Antofagasta, on the border of the María Elena and Mejillones communities.

#### Zaldívar

Antofagasta Region, 175 km southeast of the city of Antofagasta.



### FACILITIES

#### Los Pelambres

Mining and processing of sulphide ores to produce copper and molybdenum concentrates with gold by-product, through a process of grinding and flotation. Copper concentrate is transported via a 120 km pipeline to the port at Los Vilos.

#### Centinela

Mining of both oxide and sulphide ores. Produces copper concentrate with gold and silver by-products (flotation process) and copper cathodes (leaching process). Concentrate is transported by pipeline to Caleta Michilla. Cathodes are transported in trucks to the port of Antofagasta.

#### Michilla

Mining of leachable sulphide and oxide ores. Produces copper cathodes through a process of solvent extraction and electrowinning until operations ceased in December 2015.

#### Antucoya

Oxide deposit. Produces copper cathodes which are transported by truck to the port of Antofagasta.

#### Zaldívar

Mixed oxide sulphide deposit. Process of extracting copper cathodes through solvent extraction and electrowinning. Cathodes are transported via railway to the port of Antofagasta.





## ECONOMIC CONTEXT

### Antofagasta Minerals

Produces 11% of Chile's total copper output.

- ▶ Los Pelambres represents 58% of the Coquimbo region's exports.
- ▶ The three Antofagasta Minerals operations in the Antofagasta Region account for 7% of total regional exports.



## SOCIO-ENVIRONMENTAL CONTEXT<sup>1</sup>

### Los Pelambres

Operates in the Choapa Valley, traditionally dedicated to farming, livestock and mining. Characterised by a mediterranean climate in the valley and desert climate at altitude where the mine is located. Choapa province has 84,000 inhabitants.

### Antofagasta Region

Centinela, Antucoya, Michilla and Zaldívar are located in the Atacama Desert, one of the most arid regions in the world, sparsely populated, with little flora and fauna suited to a harsh desert environment.

#### ▶ Centinela

Sierra Gorda is the nearest population centre, located about 30 km from the mine. It has about 3,900 inhabitants, whose main activity is the provision of mining services.

#### ▶ Michilla

Located close to Caleta Michilla, which has 800 inhabitants.

#### ▶ Antucoya

The site is located 40 km from the old mining town of Elena María, with 7,400 inhabitants.

#### ▶ Zaldívar

The site has no nearby communities. Administratively it belongs to the city of Antofagasta, which has 379,000 inhabitants.

<sup>1</sup> Population data source: Chile's National Statistics Institute 2002.

# DISTRIBUTION OF GENERATED VALUE

*Economic value generated by Antofagasta Minerals is measured as the difference between revenues and operating costs, distributed among its stakeholders. In 2015, Antofagasta Minerals generated an economic value of US\$1,233.9 million<sup>1</sup>: US\$713.6 million was distributed to our different stakeholders and US\$520.3 million was retained by the company mainly for reinvestment.<sup>2</sup>*

## COSTS

US\$2,061.9  
million

in operation costs

4,448 suppliers<sup>3</sup>

- 25% based in the regions of Antofagasta or Coquimbo.
- 70% based elsewhere in Chile.
- 5% registered in other countries.

14,892 contractors

## REVENUES

US\$3,295.8  
million

(sales and profits)

US\$3,278.5 million ◀ From mining sales  
+ US\$17.3 million ◀ From investment income  

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US\$3,295.8 million

### MAIN MARKETS:

Japan	China	Others in Asia	Europe
34%	23%	19%	14%

<sup>1</sup> Corresponds to the difference between revenues (sales and investments) and operating costs. Data from Zaldivar is not included.

<sup>2</sup> In 2014 the Group generated an economic value US\$2,614.5 million. US\$2,387.8 million was distributed between stakeholders and US\$226.7 million was retained by the company mainly for reinvestment.

<sup>3</sup> Contractors to Los Pelambres and Centinela.

<sup>4</sup> Includes Fundación Minera Los Pelambres.



## GENERATED ECONOMIC VALUE

US\$1,233.9  
million

US\$713.6 million  
+ US\$520.3 million

◀ Value distributed

◀ Value retained

US\$1,233.9 million



### EMPLOYEES

US\$400.3  
million  
on wages and  
benefits

4,586  
direct  
employees  
(own employees)

10%  
are  
women

US\$2,7  
million  
invested in  
training



### GOVERNMENT

US\$53.5  
million  
in taxes



62% corporate  
tax  
38% *royalty*  
tax



### SHAREHOLDERS AND LENDERS

US\$207.2  
million  
distributed as  
dividends

US\$30.7  
million  
interest paid to  
lenders



### COMMUNITY<sup>4</sup>

US\$21.9  
million  
contributed to  
community projects

# BUSINESS STRATEGY



## 2018 VISION

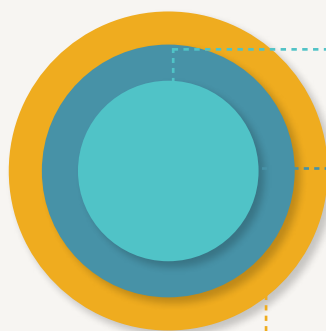
Our Vision: To be recognised as a highly profitable Chile based copper mining company with the reputation as a preferred partner nationally and internationally, allowing us to increase our mining base.

### We work to have:

- An exceptional performance in safety and health; sustainable in relation to the environment, our communities and stakeholders.
- A highly productive exploration programme that creates a solid foundation of resources and reserves to generate new projects.
- Highly efficient operations.
- A culture of excellence and compliance with our operational, developmental and stakeholder commitments.
- An innovative model for community relations, renewable energy sources, the use of seawater and sustainability.
- Exceptional management of labour relations and talent that has made us a preferred employer.

## STRATEGY

To fulfil its Vision, the Group has a business strategy based on strengthening its current operations and growth potential.



## OBJECTIVES

- 1 Existing Core Business**  
Optimise and enhance existing operations.
- 2 Organic and Sustainable Growth of the Core Business**  
Achieve sustainable, organic growth from further developing the areas around the Group's existing asset base in Chile.
- 3 Growth Beyond the Core Business**  
Seek growth beyond the Group's existing operations both in Chile and internationally.



## STAYING THE COURSE

The Group remains focused on optimising its existing operations. With respect to growth, our strategy is to focus on lower risk projects, such as the expansion of our existing operations in Chile (brownfield), while progressing new projects (greenfield) as part of the longer-term development strategy.

The Group will continue to promote its mining projects in Chile and United States, which provide a robust portfolio for growth.

## Growth

The priority in 2015 was to launch the new mining operation, Antucoya.

During the first half of 2015, the Group announced the purchase of 50% of the Zaldívar mine from Barrick Gold Corporation, which was completed in December, when Antofagasta Minerals became the operator of Zaldívar.

The Group is looking at different growth options for the development of its major mining operations: Los Pelambres and Centinela. The other major project is Twin Metals Minnesota in the United States, that has significant reserves of copper, nickel and PGMs (Platinum Group Metals).

## OPERATIONS AND PROJECTS

Los Pelambres, Centinela,  
Michilla, Antucoya and Zaldívar.

Development of Centinela,  
Encuentro Oxides Project and  
increasing the processing capacity  
of Los Pelambres.

**Chile:** Energy sector  
**United States:** Twin Metals  
Minnesota.

**Antofagasta Minerals' good quality assets and disciplined capital management will allow it to maintain its competitive position within this challenging scenario. The Group will be well positioned when the price of copper recovers.**



In order to remain a world-class mining company, we must demonstrate that we can exploit complex deposits, with lower grades and in increasingly demanding social contexts. For this reason, cost control is an urgent task at each of our companies.

➔ **More information** on our business strategy, charter of values and details of the operations that make up the business can be found in Antofagasta plc's Annual Report 2015, available at [www.antofagasta.co.uk](http://www.antofagasta.co.uk) and [www.aminerals.cl](http://www.aminerals.cl)

The Group is also undertaking a feasibility study on the Los Pelambres Incremental Expansion to maintain or increase current levels of production.

### **Centinela District**

The Group is consolidating its developments in Chile, particularly in the Antofagasta Region.

In 2015, construction of the Encuentro Oxides Project began in the mining district of Centinela. This will operate using untreated seawater, as at Centinela Concentrates and Antucoya.

The Environmental Impact Assessment for the Centinela Second Concentrator project was submitted in May 2015. This project will increase current production of Centinela to 400,000 tonnes per year and will extend its working life by 30 years. The project, which will operate using seawater, involves the addition of two pits at Centinela in addition to the three pits already being mined. It will require a new concentrator plant and another thickened tailings deposit. The project will take advantage of the existing infrastructure in the mining district by, for example, sharing concentrate and water pipelines. It is expected that the evaluation process will be completed in 2016.





Mine development at Centinela will be undertaken in two stages; the first, with an investment of US\$ 2,700 million will see the developing of Esperanza Sur, which will come into operation at the earliest in 2019. The second stage, with an additional US\$ 1,650 million investment, will include the Encuentro Sulphides deposit, projected for 2024.

### **Cost and competitiveness programme**

In reaction to the low market price of copper and increased costs in Chilean mining, in April 2015 Antofagasta Minerals announced its Cost and Competitiveness Programme with the goal of reducing costs by US\$ 300 million by the end of 2017. The programme focuses on four areas: management and maintenance of operating company budgets; services productivity; energy efficiency; and management of the corporate budget.

## **GROWING SUSTAINABLY AT CENTINELA**

With its Second Concentrator Project, Centinela will double its current mineral processing capacity extending its useful life to 2056, while maintaining its commitment to sustainable mining.

### **Innovation**

- Will operate with sea water.
- Will deposit mining waste as thickened tailings, a technology that reduces environmental impacts.

### **Local development**

- Will create 9,000 jobs during construction.
- Will have 2,900 workers during operation
- Will favour the hiring of community residents and will offer vocational training to enhance local recruitment.

# SUSTAINABILITY, GOVERNANCE AND MANAGEMENT

*Sustainability is an integral part of decision-making at each stage of Antofagasta Minerals' business life cycle. To this end, we identify risks, define policies and implement standards and management systems under the supervision of the Board through its Sustainability and Stakeholder Management Committee.*

The Board is ultimately responsible for the Group's long term success. Its responsibilities include setting strategy, establishing policies and goals, monitoring economic, social and environmental performance, risks and internal control systems. The Board is supported by five committees including the Sustainability and Stakeholder Management Committee.<sup>1</sup>

The Board has eleven Directors. None of them hold management positions in the Group and five are considered by the Board to be independent. Its composition seeks to balance experience and independence.

The Board has delegated responsibility for the implementation of the Group's strategy and financial targets to the CEO of Antofagasta plc.

The mining division is managed by the Antofagasta Minerals Executive Committee under the leadership of the Group CEO. The Committee examines the main issues affecting the mining division, approves expenditure at the operations and Corporate Centre (according to designated authority levels), leads the annual budget and planning processes, oversees the mining operations' performance and promotes the exchange of best practices and the implementation of policies through its operations. This Committee is assisted in its duties by the Operational Performance Committee, the Business Development Committee and other specific committees formed for special projects.



Board members from left to right: Juan Claro, Andrónico Luksic, Ramón Jara, William Hayes, Vivianne Blanlot, Hugo Dryland, Gonzalo Menéndez, Tim Baker, Jean-Paul Luksic, Manuel Lino Silva de Sousa-Oliveira (Ollie Oliveira) and Jorge Bande.

<sup>1</sup> The other four committees are: Audit and Risk; Nomination and Governance; Remuneration and Talent Management; and Projects.



## BOARD SUSTAINABILITY COMMITTEE

The Sustainability and Stakeholder Management Committee reviews and provides recommendations to the Board regarding policies, strategies, guidelines and goals related to sustainability, including: occupational safety and health, environmental stewardship, human rights, communications, stakeholder engagement and communities. The Committee also ensures compliance with the laws, regulations and internal procedures.

The Committee met seven times in 2015. Among other issues discussed were: safety performance including a detailed review of the causes of the fatal accident at Michilla, social and environmental aspects of mining operations, progress towards implementation of the 'Somos Choapa' framework; dialogue with the Caimanes community; and compliance with ICMM commitments.<sup>1</sup> [\[+ see p. 24\]](#)

The Committee is composed of four directors: Vivianne Blanlot, Juan Claro, Tim Baker and Ramón Jara (Chairman). In 2015, directors Jean-Paul Luksic and Jorge Bande attended regularly as guests. The CEO of Antofagasta plc, Diego Hernandez, and the CEO of Antofagasta Minerals, Ivan Arriagada, also attended these meetings.



## Guidelines and standards

The six corporate values (respect, safety and health, innovation, excellence, sustainability and vision) form the foundation for Group decisions and business management. Antofagasta Minerals relies on its sustainable development principles and its policies on social relations, environment, safety and health and human resources management, among others. These policies, in addition to the management procedures and standards, are aligned with best international practices.

Management systems implemented by the Los Pelambres project and Centinela (oxide operations), are certified ISO 14001, ISO 9001 and OHSAS 18001.

➔ **More information** on the governance structure, responsibilities, roles and composition of the Board, and the Board's performance evaluation is available in the Antofagasta plc Annual Report 2015, on p70.

<sup>1</sup> International Council on Mining and Metals (ICMM). More information at [www.icmm.com](http://www.icmm.com)



## LISTED IN THE FTSE4GOOD

In 2015, Antofagasta plc was included in the FTSE4Good, the London Stock Exchange sustainability index. This index includes listed companies from around the world that meet predetermined requirements: demonstrating sound environmental, social and corporate governance practices, and transparent reporting and management. Compliance with the FTSE4Good requirements is evaluated on the basis of 300 indicators.



FTSE4Good

## SUSTAINABLE MINING

Antofagasta Minerals participates in the International Council on Mining and Metals (ICMM), a global organisation dedicated to promoting sustainable standards for mining development and encouraging its members to adopt and share best social and environmental practices. Members must formally commit to the implementation of a set of principles and policies on sustainability, including safety and health, environmental management, community and stakeholder engagement, and corporate governance. They must also publish externally verified sustainability reports.

Antofagasta Minerals joined the ICMM in May 2014 and has committed to complying with its principles and other requirements. It has identified several opportunities for improvement with respect to compliance with ICMM requirements. A plan was developed to close out these gaps during 2015 and progress will be reported to the ICMM in March 2016.

**ICMM**  
International Council  
on Mining & Metals



## PERFORMANCE ASSESSMENT

Antofagasta Minerals relies on a set of indicators to measure, evaluate and monitor its environmental and social performance.

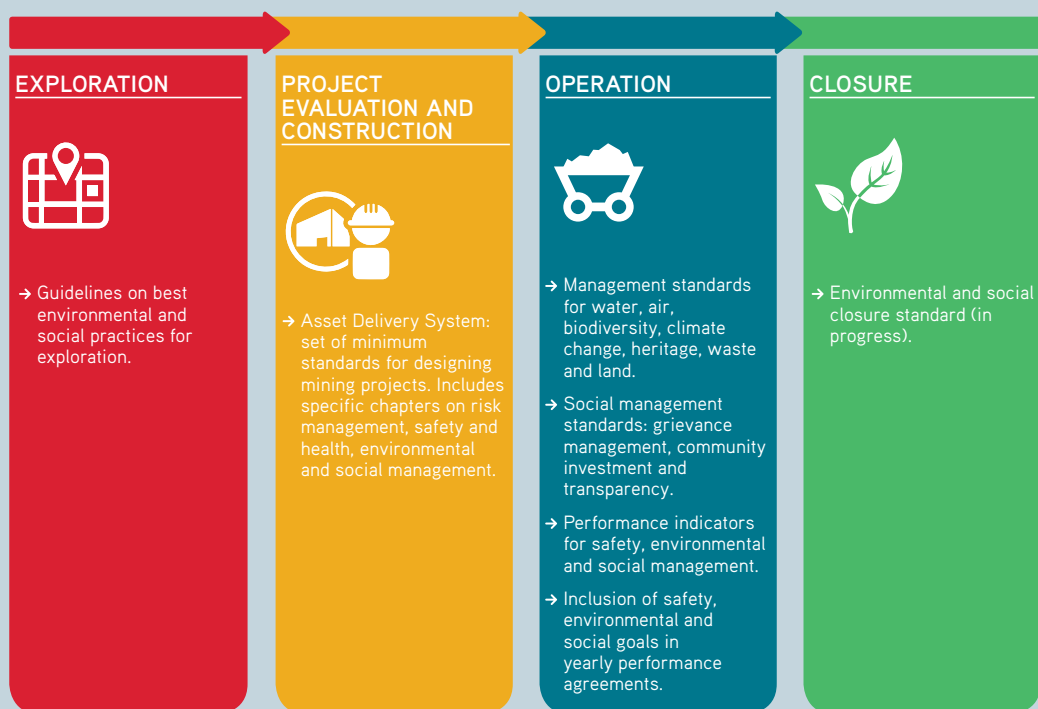
Environmental assessment includes: efficiency in the use of resources, control of environmental impacts and environmental benefits generated. Social performance is measured by responsible behaviour, social risk management and human capital development.

Each mining company within the Group sets environmental and social goals in accordance with its priorities.

Socio-environmental indicators are incorporated into the goals of every mining operation and are also included in employee's individual performance agreements. Achievement against these goals is monitored in monthly operational performance reviews and is included in reports to the Board.

## Sustainable management through the mining cycle

Antofagasta Minerals has been developing a set of tools (best practices, standards and indicators) to better integrate social and environmental aspects at every stage of the mining cycle based on the legal framework and relevant international standards.



### RISK MANAGEMENT

The Group has a methodology to identify any risks that could compromise core business objectives. Controls are established and responsibilities assigned to prevent and/or mitigate them.

#### Board responsibility

The Board has ultimate responsibility for determining the nature and scope of the significant risks for the Group, as well as ensuring the application of appropriate internal control systems.

Strategic risks and the status of their respective controls are regularly reported to the Board through its Audit and Risk Committee, and to the Sustainability and Stakeholder Management Committee, when relevant.

#### Identification, evaluation and control

Each year the operating companies' executive teams within the Group carry out a review of the risks associated with their key processes at various organisational levels, from the operational to the strategic. Risks are evaluated according to probability of occurrence and potential impact. Preventative or mitigating controls are then outlined and assigned to a person who is then responsible for their implementation. Analysis and control of each of these risks is performed through the corporate risk management system, which is continuously monitored by the corporate centre.

#### Socio-environmental risks

Risk identification includes the assessment of social, environmental and reputational impacts. The main sustainability risks for the Group are: the occurrence of fatal accidents, lack of compliance with core social and environmental commitments, poor management of environmental liabilities and mining waste, spills of concentrate and non-compliance with the Mauro dam's permits. [\[+ see p. 63\]](#)

The due diligence process for the purchase of 50% of the Zaldívar<sup>1</sup> included a review of the safety, social and environmental aspects of its operation.

#### Internal audit

The internal audit management function is an independent area of administration which reports directly to the Audit and Risk Committee. It is responsible for ensuring that internal control is effective. The annual internal audit plan is based on an assessment of the Group's key risks. As a result of the audits, measures are proposed to correct identified control deficiencies.

In 2015 the corporate audit programme included safety, environmental and social performance. In addition, Los Pelambres' compliance with the principles of the ICMM was audited for the first time. Another focus was to run audits on the implementation of the safety and health management framework.

[\[+ see p. 29\]](#)

➔ **More information** on risk management, responsibilities, the Group's focus in 2015 and details of the main risks and their mitigation efforts, are in the Annual Report 2015, p.32.

<sup>1</sup> In December 2015, Antofagasta Minerals completed the purchase of 50% of Zaldívar.





## Compliance

Antofagasta Minerals complies with applicable laws and regulations in Chile and the United Kingdom, as well as in the other countries where it is active. The Company also meets the commitments contained in the environmental permits of its operations and projects in Chile.

For labour matters, the Group complies with legal requirements, good international practice and corporate standards. These standards are also applicable to contractors and are regularly audited at site level and by the corporate centre. In 2015 an employment audit was carried out of 425 contractors reviewing aspects such as salary payments and bonuses, overtime, holidays, compliance with the legislation on trade unions and collective bargaining. Aspects related to the safety of employees and contractors are also audited regularly.

# ETHICS AND HUMAN RIGHTS

*Our values and Code of Ethics provide the framework for how we manage and relate to Group employees, shareholders, authorities, communities, suppliers, partners and other stakeholders. We seek to be a Group that is recognised for honest business conduct, transparency and respect for human rights and the law.*

## ETHICAL CONDUCT

Our Corporate Code of Ethics provides a set of internal rules to be followed by company representatives when interacting with shareholders, employees, authorities, communities, customers, suppliers and partners.

Our Crime Prevention Manual outlines the procedure to be followed by employees and contractors with regards to any potential conflicts of interest as set out in Chilean law (Law 20.393) and the UK Bribery Act. It has specific guidelines for issues such as: conflicts of interest, gifts and invitations, facilitation payments and business relationships with politically exposed persons (approved in September 2015). The Group has also implemented a procedure to review its suppliers and customers, prior to commencing any procurement activities, in order to limit its exposure to potential conflicts of interest and corruption.

## Whistleblowing

The Group maintains formal and informal consultation and feedback mechanisms that allow employees, contractors and communities to make complaints and have their concerns heard. This can be achieved through several media, such as our website and a dedicated phone line, so that any person may report an irregularity or concern anonymously. Under the supervision of the Board, any complaints or concerns are then investigated by the Ethics Committee and the conclusions drawn are discussed with the Audit and Risk Committee. Each complainant is assigned a code that allows the complaint to be tracked through the process and the results known. No complaints were received relating to discrimination, violation of human rights or corruption in 2015.

Training and workshops on ethical conduct and crime prevention across all Group operations have been undertaken and 576 employees were trained during 2015. The Code of Ethics, complaints procedure, the Crime Prevention Manual and related guidelines are part of the induction course given to new employees. The Group has also strengthened its Antitrust policy through specific workshops.

## Principles contained in the Code of Ethics

Respect for company principles and values.

Compliance with laws and regulations.

Prevention of conflicts of interest, corruption and bribery.

Appropriate use of information.

Ensure appropriate working conditions.

Prevention of discrimination and harassment.

Respect for human rights.

Respect for communities, their traditions, customs and culture.



## HUMAN RIGHTS

Respect is the first of our six corporate values and respecting human rights is of great importance to the Group. This was evident during 2015 by the way in which certain decisions were implemented and communicated to employees and contractors. For example, when operations ceased at Michilla, the implications for employees in relation to cost reductions and retrenchment were handled in a transparent, timely and respectful way towards the affected people to whom the closure was communicated 14 months in advance.

## ETHICS AND HUMAN RIGHTS

In 2015, Antofagasta Minerals carried out a self-diagnosis using the instrument developed by the Danish Institute for Human Rights. This included specific indicators on aspects such as labour, impact on communities and supply chain management. Two areas with a specific opportunity for improvement were identified, which were also highlighted by the ICMM application process. These were: communication of emergency procedures and the usage of the grievance mechanism. It was also decided that the Code of Ethics and the terms of reference of the Board's Sustainability and Stakeholder Management Committee were to be upgraded to make a more explicit commitment to respect human rights. In 2016, we will work to close these gaps and raise employee awareness of human rights by incorporating additional human rights content into the induction courses.

### Indigenous peoples

Antofagasta Minerals has no operations or mining projects which affect indigenous peoples. To date it has had very limited interaction with indigenous groups in Chile, all associated with short term exploration activities. In all of these cases, the Group succeeded in fostering good relationships based on good faith, mutual respect and fulfilment of its commitments within the framework of ILO 169 and the ICMM recommendations.

The policies and corporate guidelines include specific safeguards with respect to the human rights of different stakeholders.

WORKERS	CONTRACTORS	COMMUNITIES	SOCIETY
<ul style="list-style-type: none"><li>· Only employ individuals of legal working age</li><li>· High standards of safety and health.</li><li>· Payment of fair wages, high standards of accommodation and good quality of food.</li><li>· Maintaining good labour relations.</li><li>· Offer development opportunities.</li><li>· Prevent discrimination, harassment and bullying.</li></ul>	<ul style="list-style-type: none"><li>· Monitor standards of safety and health and provide appropriate working conditions and wages, amongst other key indicators.</li></ul>	<ul style="list-style-type: none"><li>· Respect the rights, culture and heritage of communities.</li><li>· Identify and manage any potential impacts early.</li><li>· Listen and respond to grievances.</li><li>· Support community development.</li></ul>	<ul style="list-style-type: none"><li>· Prevent corruption and promote the reporting of malpractices.</li><li>· Generate a positive social, economic and environmental legacy from the start of exploration to the end of operations.</li></ul>



# EL VALOR ESTÁ EN TI

RESPETO

+

SEGURIDAD Y SALUD

+

SUSTENTABILIDAD

+

EXCELENCIA

+

INNOVACIÓN

+

VISIONARIOS



ANTOFAGASTA  
MINERALS

# MEETING OUR SUSTAINABILITY GOALS

The following were the Group's sustainability goals for 2015. These include seven specific commitments to address the ICMM's' recommendations at the time of accepting Antofagasta Minerals' membership.

CORPORATE GOVERNANCE	GOAL	COMPLETED	REVIEWS
	Incorporate sustainability into internal audit processes. <b>ICMM commitment</b>	✓	The 2015 audit plan included the review of sustainability issues based on the ICMM principles. <a href="#">[+ see p. 18]</a>
	Review the corporate framework for human rights and assess if corporate policies and training need to strengthened. <b>ICMM commitment</b>	✓	The company did a Human Rights self-assessment and it updated the Code of Ethics, the terms of reference of the Board's Sustainability and Stakeholder Management Committee and of the induction course for new employees. <a href="#">[+ see p. 21]</a>
	Review the applicability of the Voluntary Principles on Security and Human Rights. <b>ICMM commitment</b>	✓	Included in the Human Rights self-assessment that revealed no gaps regarding this issue: Internal rules on security provision respect human rights.
	Approve a policy on indigenous peoples. <b>ICMM commitment</b>	●	It will be incorporated into the new corporate sustainability policy, which will be approved in 2016.

ENVIRONMENT	GOAL	COMPLETED	REVIEWS
	Zero incidents with significant environmental impact.	✓	There were no incidents with significant environmental impact in 2015. <a href="#">[+ see p. 53]</a>
	Full implementation of all key environmental risk controls (management plans).	●	92% of the controls for the key environmental risk were implemented satisfactorily. The remaining 8% are being implemented.
	Generate a corporate standard for biodiversity. <b>ICMM commitment</b>	✓	A new standard for biodiversity was developed. <a href="#">[+ see p. 69]</a>
	Generate a corporate climate change standard. <b>ICMM commitment</b>	✓	A new standard for climate change was developed. <a href="#">[+ see p. 60]</a>
	Generate a social and environmental standard for mining closure. <b>ICMM commitment</b>	●	This standard is in preparation and will be completed in 2016. <a href="#">[+ see p. 71]</a>



## SOCIAL

GOAL	COMPLETED	REVIEWS
Zero fatalities.		A contractor was killed in a fatal accident at Michilla. <a href="#">[+ see p. 32]</a>
Implement Michilla's plan to go onto care and maintenance, complying with commitments and with the highest levels of safety and security.		Although the plan was completed and commitments were fully met, a person died in a fatal accident.
Fulfil Los Pelambres' commitments in the Salamanca Agreement.		Progress was made in all commitments as per on the agreement. <a href="#">[+ see p. 56]</a>
Progress in the implementation of the Somos Choapa framework.		There was significant progress in the implementation of the new local engagement framework. <a href="#">[+ see p. 42]</a>
Engage with local stakeholders regarding socio-environmental risks, and plans to prevent and control potential emergencies. <b>ICMM commitment</b>		This topic was central to the dialogue between the Caimanes community and Los Pelambres. <a href="#">[+ see p. 46]</a>

<sup>1</sup> In May 2014, Antofagasta Minerals was accepted as a member of ICMM. One of the entry requirements is to undergo an expert review on the implementation of the ICMM principles and commit to a plan to close the identified gaps. [\[+ see p. 16\]](#)



## Relationship with stakeholders

# BUILDING TRUST AND SHARED DEVELOPMENT

### OUR APPROACH

Antofagasta Minerals has learned that engaging with its stakeholders is an essential part of its business. Its main stakeholders are shareholders, employees and contractors, investors, communities, Government and technical authorities, customers and suppliers, and the Group maintains constant communication with all of them.

With regards to community management, the Group has implemented a new local engagement framework that aims to build a shared vision for sustainable local development of the regions where we operate. [\[+ see p. 42\]](#)

*Stakeholders' expectations and concerns with regards to the activities of the Group need to be understood and managed. We are improving our capacity to listen and thus increase value for all concerned parties.*

### COMMUNICATION TOOLS

The Group regularly publishes its production and financial results, including an Annual Report and this Sustainability Report, reports to the Carbon Disclosure Project (CDP) on climate change and water management. In addition, it regularly participates in roadshows with investors and customers, as well as seminars with different stakeholders, and is available through its web sites and major social networks.





Antofagasta Minerals conducts continuous dialogue with its employees, along with collecting their views in a structured manner through the collective bargaining process and the annual performance management system.

The Group's mining operations also maintain formal engagement with communities through participatory environmental monitoring, site visits, a grievance mechanism and formal consultation processes. Los Pelambres carried out consultation processes in 2015

[\[+ see p. 41 and 46\]](#)

In 2015, Antofagasta Minerals adopted a more proactive role in the use of social media using networks such as Facebook, Twitter, YouTube and Flickr. This has strengthened the link between the Company and its stakeholders in these increasingly relevant forums.

### Public presence

Antofagasta Minerals is convinced that sustainable mining in Chile requires closer alignment between the government and private enterprise. To this end, the Group's executives have actively promoted a strategic national mining agenda and public-private partnerships to facilitate its implementation. In addition, an Antofagasta Minerals' representative holds the presidency of the Consejo Minero and is a Vice President of Sonami.<sup>1</sup>

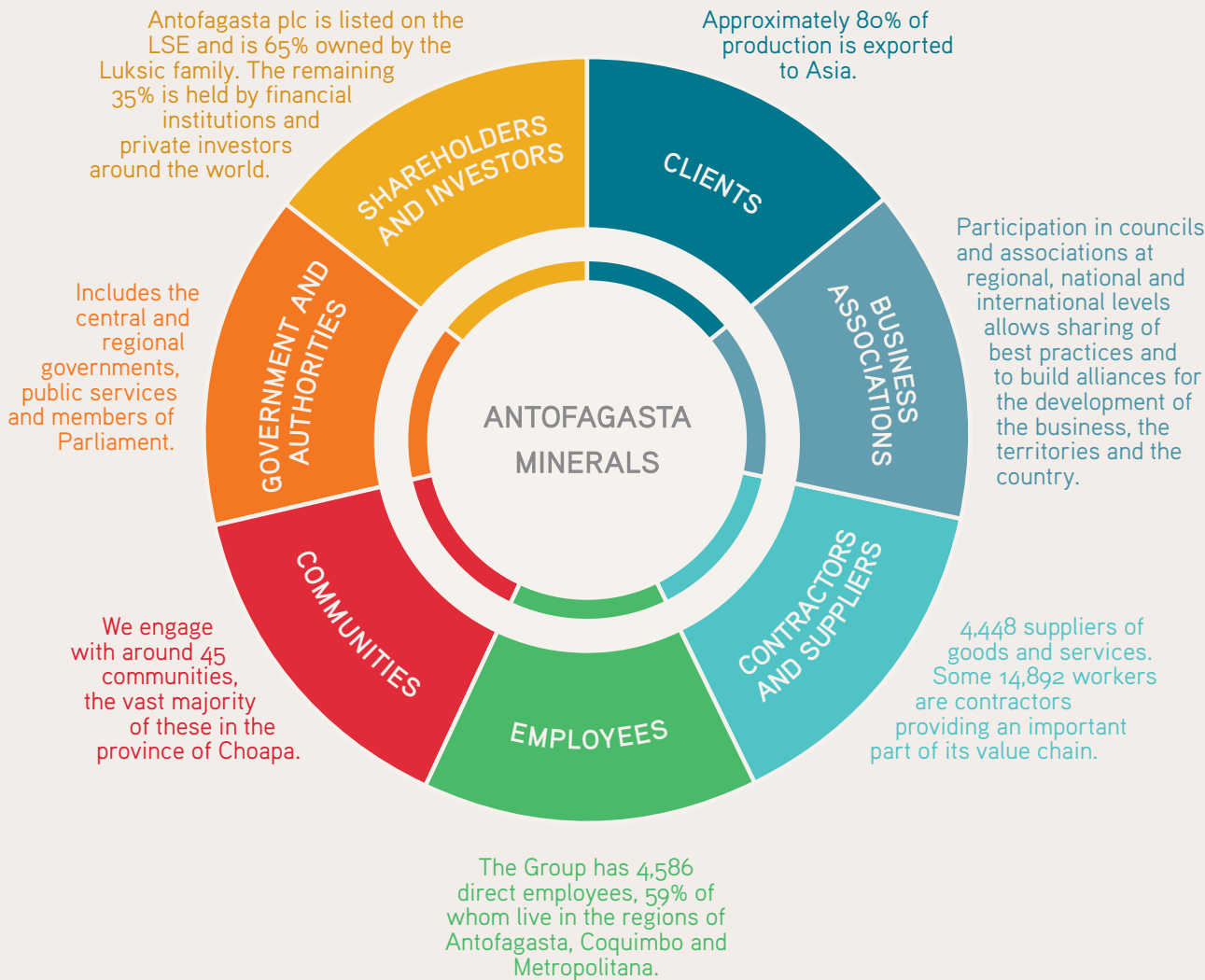
The Group is a member of the International Council on Mining and Metals (ICMM), the International Copper Association (ICA) and the International Molybdenum Association (IMOA), amongst others. Additionally, the Group's mining companies are involved in regional industrial associations and other relevant local organisations.

In accordance with new Chilean legislation regarding lobbying, the Group requested several meetings with the authorities.

In 2015 the Group did not make contributions to political parties or political campaigns.

<sup>1</sup> Mining Council and the National Mining Society, the two Chilean mining trade organisations.

RELATIONSHIP WITH STAKEHOLDERS



# FOCUSING CRITICAL RISKS PREVENTION

*Antofagasta Minerals has continued to decrease the number and severity of accidents affecting its employees and contractors. Despite this, in 2015 one of our contractors regrettably died. We aim to eradicate fatalities at our sites. No operational goal is more important than the life of a person.*

## OUR APPROACH

Our safety and health management system is focused on identifying, controlling and preventing higher risk activities. This applies to both workers and contractors.

The pillars of the framework are:

- ▶ Early identification of high risk activities.
- ▶ Implementation of critical controls to manage these risks.
- ▶ Report and investigate incidents with high potential to cause fatalities.
- ▶ Leadership of executives on the sites.

This framework is based on international best practices promoted by the ICMM

At the end of 2013, Antofagasta Minerals began the implementation of its new safety and health management framework, focused on preventing potential accidents that might result in death or severe injury.

In 2014 we identified the main safety risks in each operation. This process was carried out at a base level with the active participation from employees and contractors. Eleven risks, accounting for 95% of potential accidents and 100% of the fatalities since 2006, were identified. Critical controls were assigned to each one of these risks and compliance indicators were set. In 2015 the focus was to ensure the full implementation of these controls through strong field supervision, reinforcement of strong barriers and change management.

In 2016 the two main priorities will be: to strengthen the verification programme with audits of critical controls for high potential safety risks and to accelerate the transfer of the corporate safety framework to contractor companies.

## CULTURAL CHANGE

The implementation of the safety and health management system has required the introduction or reinforcement of processes and standards which are supported by change management.

In 2015 the Executive Committee conducted seven site visits, headed by the Group CEO, to reinforce personnel safety. On each occasion, the focus was on ensuring that critical controls for higher risk potential activities were in place.

The Company must ensure the conditions for a safe workplace. For their part, the employees must verify that these conditions are effective each time that they perform any of the high risk activities identified.

One of the main risks is the loss of control of vehicles. In 2016 we will be implementing more controls to manage this situation; for example: by installing collision warning devices and operator tiredness alerts.





“If a critical control for the execution of a high risk activity is found missing, the employee must stop the activity. The company must provide safe working conditions, and each worker must verify that these conditions are in place each and every time that the activity is performed.”

Iván Arriagada  
CEO of Antofagasta Minerals



## ANTOFAGASTA MINERALS SAFETY FIGURES \*

Includes employees and contractors

	2013	2014	2015
All Injury Frequency Rate (AIFR)	3.9	5.0	6.9
Lost Time Injury Frequency Rate (LTIFR)	1.1	1.1	1.1
Near Miss Reporting Index (for every million hours worked)	n/a	7.8	13.5
Number of fatal accidents	2	5	1

\* All data on the Group's safety performance considers the sum of direct employees and contractors in Los Pelambres, Centinela, Michilla, Antucoya and exploration in Chile.

n/a Not available.



### Reporting and training

Safety and health performance is reported weekly to the Executive Committee and monthly to the Board. It is also reviewed in detail by the Board's Sustainability and Stakeholder Management Committee..

Awareness-raising and training are other key aspects of this management approach. During 2015 over 3,900 people received safety training about topics such as incident reporting, investigation of near-misses and the new corporate regulations on safety management for contractor companies.

### FACILITY SAFETY

Our facilities and processes are designed to withstand the impact of earthquakes

and extreme weather conditions. We have procedures and emergency plans which include coordination with the authorities and the relevant public services.

There were two situations in 2015 when the safety installations and the Group's emergency response procedures were tested. In each case there wasn't any impact on the safety of our employees or our facilities. In March, severe flooding affected the Antofagasta Region. Operations at Michilla and Centinela had to be stopped for several hours as a precaution. Similar measures were taken on 16th September, when an earthquake registering 8.4 on the Richter scale shook the area where Los Pelambres tailings dam is located.

[\[+ see p. 45 and 64\]](#)



### OPERATIONAL HEALTH

The Group has identified six major health factors that could cause death or severe disability due to prolonged exposure, namely: silica dust, sulphuric acid haze, ionizing radiation, solar radiation, altitude and noise. This baseline will be monitored, reinforcing prevention and improving controls. Critical controls and verification tools were also developed for each of these identified factors.

A cross section of employees and contractors from the company is represented within the joint safety and health committees at each operation. Their function is to develop activities to continuously improve the safety and health conditions at their operations.

### 2015 PERFORMANCE

We regret to report that a contractor died at Michilla in 2015. One outcome from this fatal accident is that there are now new operational control measures in place for our contractor companies. The fatality has also led to increased efforts to accelerate the extension of our safety

and health management system to contractor companies.

The Lost Time Injury Frequency Rate (LTIFR) for 2015, which measures the frequency of serious accidents, was the same as in 2014, reflecting the fact that the relative number of accidents remained stable.

The All Injury Frequency Rate (AIFR) increased from 5.0 to 6.9. This increase is due to the introduction of a change in the registration criteria for accidents. Nevertheless, these indicators are reactive. The key proactive indicator to reflect the effectiveness of our preventive management is the Near Miss Index which allows us to record situations in which critical controls were absent. In 2015 we had 13.5 reported near misses per million hours worked, 75% higher than 2014. This reflects the increased willingness of employees to proactively identify high risk situations.

The safety and health management system is audited twice a year at each site. Results are reported to the Executive Chairman and the General Manager of each company.

## MANAGING CONTRACTOR SAFETY

Most of the fatal accidents in Antofagasta have involved contractors, who make up about 75% of the labour force. It is essential, therefore, that the contracting companies fully implement and apply the Group's safety and health management system.

At the end of 2015, we issued new Group guidelines on safety and health requirements for contractor and subcontractor companies. Their full implementation is one of the key priorities for 2016.

These guidelines have been adopted from the Antofagasta Minerals safety and health management system. They include training and technical support and describe the consequences for companies that do not adhere to these guidelines.

Antofagasta Minerals continues to work with the Association of Mining Suppliers to strengthen common criteria and safety standards.





# PREFERRED EMPLOYER

*To achieve our goals Antofagasta Minerals requires the full commitment of all its employees. We seek to anchor their motivation in shared values, a clear business vision and an attractive employee value proposal that maximises the experience of belonging to the Group.*

## OUR APPROACH

Our human resources strategy ensures the development of organisational capabilities, based on a common culture, that support our business strategy.

Its focus is to:

- ▶ Develop a human resource management framework.
- ▶ Strengthen a corporate culture based on values.
- ▶ Manage talent.
- ▶ Encourage employee commitment and maintain the best labour relations.
- ▶ Support organisational effectiveness.

In 2015 the Antofagasta Minerals workforce comprised 19,478 direct employees and contractors, which compares with 24,225 in 2014. Most of this reduction was due to the completion of the construction of the Antucoya project.

## HR FRAMEWORK

Our organisational framework respects human rights, develops employees and prepares them to take on the challenges of the business. It also captures synergies and promotes the sharing of knowledge between the Group's mining companies. From 2013, Antofagasta Minerals began a systematic effort to build a corporate culture that supports its business objectives. This culture is based on its six corporate values, defined with employee's participation. The initial effort was dedicated to strengthening standards, processes and corporate programmes. Then, in 2014 the focus was on implementing a shared software platform that allows integrated management.

In 2015, we worked on the consolidation of the human resource management framework. The priorities for the year, included:

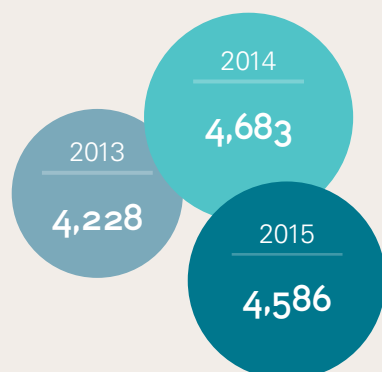
- ▶ Strengthening the performance management system as a tool for organisational alignment.
- ▶ Promoting internal mobility and coverage of key positions with candidates from the Group's talent pool.
- ▶ Improving organisational effectiveness and efficiency as part of the corporate Cost and Competitiveness Programme.
- ▶ Supporting the cessation of operations at Michilla, mitigating its impact on employees. [\[+ see p. 72\]](#)



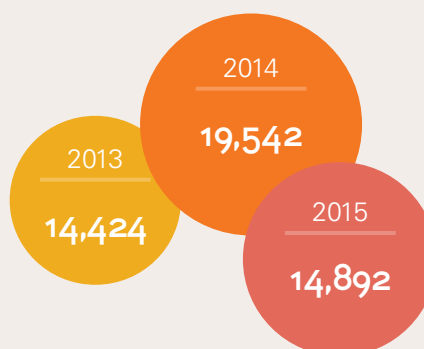


## NUMBER OF EMPLOYEES\*

### Employees



### Contractors



\* Annual average includes workers at the operations and at the corporate centre.

It does not include Zaldivar, which had 971 employees and 1,531 contractors in 2015.

## MANAGING TALENT

Antofagasta Minerals has a comprehensive talent management system aimed at employing competent people, committed to the company and to their own development. It prioritises the strengthening of performance in current roles by providing training opportunities, and access to new roles through internships, placements and temporary assignments to specific projects.

The performance management system aligns employees with the Group's business objectives and the priorities of their functional areas during the year. It also allows the assessment of personal leadership in reflecting the corporate values of the Group. This system allows for the distribution of incentives and development opportunities to be fair and based on known criteria.

### Opportunities for development


Training and development programmes are intended to strengthen the executive's leadership competences, and train managers on all aspects of their roles, such as safety, risk assessment and contract administration. In 2015 a mentoring programme was started and inter-company internships were developed.

For six years, the Group has run a programme to recruit young professionals and train them through year-long internships during which interns are involved in specific projects aimed at improving operational effectiveness. Between 2010 and 2015, 135 young professionals have participated in the programme, 30% of whom were women. In 2016, 62% of those who joined the programme were women.

In 2015 a plan was implemented to reskill and promote the employability of Michilla's workers as the company ceased operations in December. [\[+ see p. 72\]](#)

In 2015 more than 9,711 hours of training was given to employees, with an average of 2.1 hours per employee and an investment of over US\$2.7 million.

Internal mobility goals were established in 2015 when 64% of supervisor-level vacancies were filled by current employees. Additionally, 68% of vacancies for key positions were filled with professionals from the Group's talent pool.



## Antofagasta Minerals

### OUR EMPLOYEE'S VALUE PROPOSAL

- ▶ We are the **largest Chilean non-state held mining group** and are a **young and growing** company
- ▶ We value the life of our workers above all, therefore ensuring their **safety and health** is essential to achieving excellence in everything we do.
- ▶ We base our management on clear and known values and this makes **us one of the leading employers** in Chile and Latin America.
- ▶ We are **committed to the development and future of our employees**, the country and its inhabitants. We believe in **innovation**, entrepreneurship and our ability to improve continuously. We promote initiatives that respond to the challenges of the environment and develop new ways of making mining **sustainable**.
- ▶ We want to lead the advances in **competitiveness** required by Chilean mining to maintain its leadership in the industry.

In the mining industry's current scenario, the challenge for 2016 will be to strengthen organisational culture as regards safety, excellence and continuous improvement to boost efficiency and competitiveness.

## QUALITY JOBS

The Company believes that committed employees are more productive and in 2014 the Company conducted a study to measure this. The study revealed an engagement level of 82%, significantly exceeding the average for Chilean companies of 66% and for the Latin American mining industry of 76%. It also showed high satisfaction amongst employees with their daily tasks, their work-life balance, safety, their working environment, diversity and inclusion. The main areas identified as needing improvement were leadership and communications.

In 2015 several employee meetings were held to discuss the results of the commitment study. More than 240 people reviewed the conclusions and provided input for the improvement plans which are currently being developed.

### Quality of life and benefits

The Group's mining operations continually improve camp services to offer the best quality of life to their workers and contractors. Varied sports facilities and high quality recreational spaces are at their disposal.

The main worker benefits offered by the Group include a full annual medical examination, health insurance and life insurance.

### Gender diversity

Antofagasta Minerals recognises the potential of human capital that exists in the recruitment of women, and strives to create environments that facilitate their professional and personal development. In 2015 women accounted for 10% of the labour force of which 8% were at manager level overseeing staff.<sup>1</sup>

The Group has one female Vice-President and one female Board member.



# 64%

## internal recruitment

In 2015 internal recruitment was able to fill nearly two-thirds of the supervisor-level vacancies.

## LABOUR RELATIONS

Antofagasta Minerals maintains good relations with its employees and unions, founded on trust, continuous dialogue and good working conditions. The Group is committed to safety, non-discrimination and compliance with Chile's strict regulations on labour matters.<sup>2</sup> The Group has never had a strike.

Antofagasta Minerals has eight trade unions: three at Los Pelambres<sup>3</sup>, three at Centinela, one at Michilla and one at Antucoya. Collective labour agreements were negotiated with all of the unions in 2014. In 2015, 59% of the employees were unionised and covered by these labour agreements.

<sup>1</sup> The calculation formula changed in 2015. Now it only counts women in supervisory positions with staff.

<sup>2</sup> Chilean law guarantees basic human rights, such as: working conditions, minimum wage, prohibition of forced and child labour and freedom of association.

<sup>3</sup> In 2015 a new trade union was formed at Los Pelambres totaling three unions.

## OUR STRATEGIC PARTNERS

*The company's service contractors and suppliers are essential to the success of Antofagasta Minerals. Contract workers represent 76% of the Group's workforce. Our challenge is to boost business competitiveness through the establishment of labour standards and mutually beneficial relationships.*

### OUR APPROACH

The Group seeks to build stable relationships with suppliers that share our values and practices. In terms of sustainability, we require our contractors to comply with the legal minimum standards and human rights of their workers, safety and health conditions, wages, benefits and incentives. These requirements form part of the agreements with our contractors and are audited regularly.

The Group has a corporate procurement team that define general guidelines for the purchase of goods and services, and provides technical advice to site contract managers.

Our main supplies are: energy, fuel and spare parts as well as maintenance, construction and installation services.

### CONTEXT

In Chile large-scale mining companies outsource specialised services that are ancillary to its core business. Contractors provide permanent support to mining operations such as maintenance, transport and food services. Project contractors provide temporary services mainly for the construction of new facilities or expansions. The number of contractors on projects varies considerably from one year to another, depending on the amount of work in progress.

#### A corporate approach

The Group's corporate values and the Code of Ethics also apply to contractors, and special programmes are in place to ensure that they are aware of and share this information. The Safety and Health management, Human Resources, Environmental and Public Affairs teams work closely with these companies to ensure that the Group's standards, management systems and priorities are communicated and followed by the contractors.

At Antofagasta Minerals, contractors' workers have access to the same camp and catering facilities as the company's own employees, as well as to the same standards of safety and health. The company also requires its contractor companies to pay a minimum wage that is 70% higher than that required by Chilean law; as well as additional benefits such as health and life insurance. The Group ensures that its contractors comply with all labour laws and its corporate standards by carrying out audits at least once a year. In 2015, Antofagasta Minerals carried out 542 audit processes to its contractors companies.

The Group's corporate procurement model provides support to the business unit's tendering processes, and contract monitoring and control, within the legal framework and company good practice.







## Communities

# BUILDING DEVELOPMENT TOGETHER

### OUR APPROACH

We believe our activities should contribute to the sustainable development of our host communities in the long-term. This conviction requires us to understand the challenges of the region and become part of the solutions, working with the communities, the local authorities and other stakeholders.

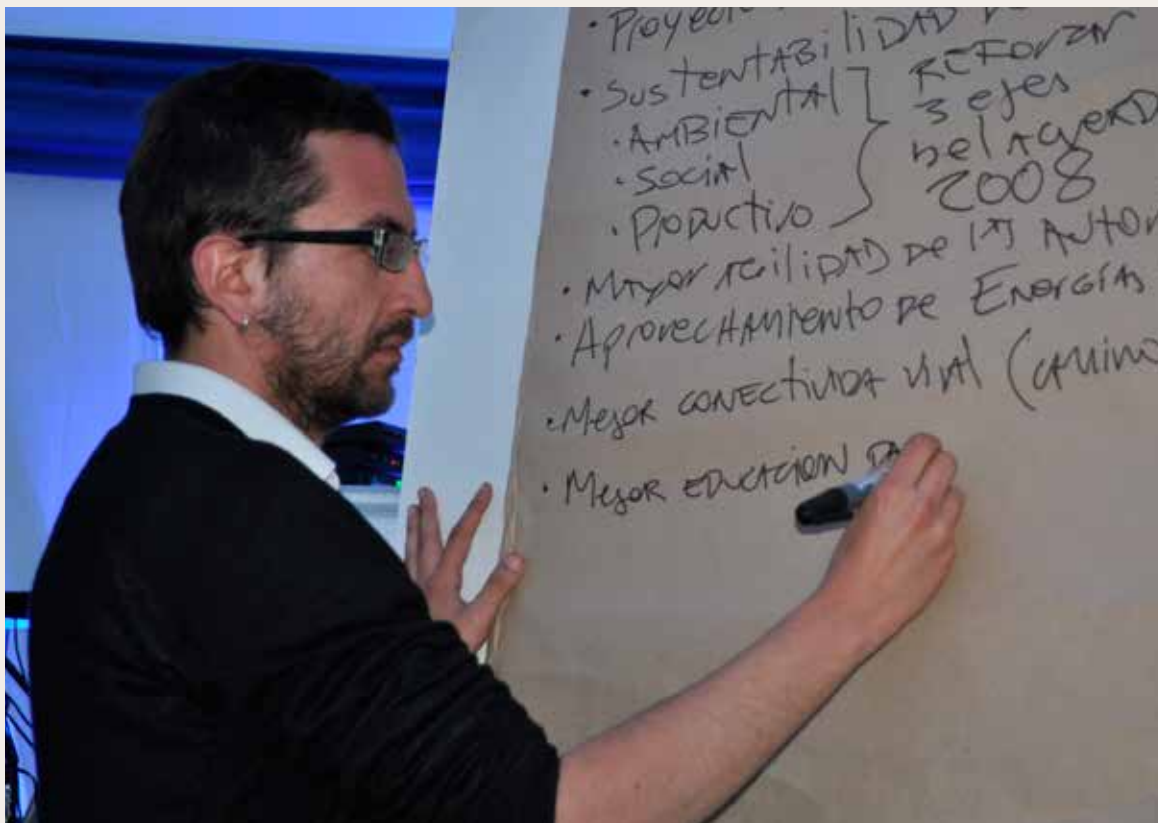
Our actions are based on our corporate values, prioritising safety, and human rights, communication, transparency and contributing to local development.

*Maintaining our social licence to operate and develop in the 21st century requires innovation in the way we engage with our host communities and contribute to their well-being. Antofagasta Minerals is moving towards a new local engagement framework to promote local development with the main stakeholders in alliance with the Government.*

### SOCIAL ENVIRONMENT

Antofagasta Minerals operates in two of Chile's administrative Regions. Michilla, Centinela, Antucoya and Zaldívar are in the Antofagasta Region in a sparsely populated, traditional mining area in the Atacama Desert. Los Pelambres is located in the central part of the country in the Coquimbo Region. Its operations runs through the Choapa Valley, from the mountains to the sea, with approximately 80,000 inhabitants and over 42 communities, engaged mainly in agriculture, livestock, fishing, mining and tourism.

➔ **More information** about our commitment to human rights and the Group's Code of Ethics on p.20.



Its geographical situation and the evolution of the communities and the country's expectations, have made coexistence between a large mining operation and communities more complex for Los Pelambres than for the rest of the Group's mining companies. At the end of 2012 the Group initiated a thorough review of its approach to its relations with the communities and formulated a new local engagement framework. In 2016 its principals will begin to be applied to our operations in the Antofagasta Region as well.

**3,600**  
people

participated in various dialogues as part of the Group's Somos Choapa strategy.

## CONTINUOUS DIALOGUE

The Group has learned that continuous stakeholder engagement is a central component of managing the business and that to obtain good results it is fundamental to have broad participation, and an inclusive and transparent process.

Antofagasta Minerals' companies use a range of mechanisms for dialogue within the communities, such as round table discussions, participatory monitoring, site visits, and the Somos Choapa initiative. There is also a formal system to investigate and respond to community grievances. In 2015 we received 64 formal grievances and the main topics were delays by contractors and subcontractors paying local suppliers and labour issues within contractor companies.

Los Pelambres also uses a system to register and follow up on its commitments to the community.



## SOMOS CHOAPA (“We are Choapa”)

The Somos Choapa strategy is the end result of Antofagasta Minerals’ new local engagement approach at Los Pelambres. It is a framework to support permanent engagement between the company, the communities, the local authorities and other stakeholders within the area affected by the company. It allows joint decisions about how the company should contribute to local development in a way that is aligned with public policies.

Somos Choapa has been welcomed with growing interest by local people. By 31st December 2015 there

had been 49 meetings, with the participation of local organisations and 3,600 locals. As a result, 18 strategies were defined to address the region’s challenges that involved 57 initiatives of which 12 were in various stages of development at the end of 2015. The Minera Los Pelambres Foundation is in charge of implementing these projects.

Two new municipal corporations were formed to help manage Somos Choapa projects and strengthen local government capacity.

The framework’s main innovations are:

1

**Wide participation** from the communities, municipalities, Los Pelambres and local companies to:

- ▶ Identify local controversies and challenges.
- ▶ Build a joint vision for local development.
- ▶ Define a portfolio of projects and programmes to carry out the vision.

2

**Fostering a comprehensive mid to long term approach** to the challenges of the four municipalities in the Choapa province.

3

**Public-private partnership.**

Strengthening local capability to design and implement projects that are designed to be synergistic with local public policy using both public and private resources for their implementation.

4

**Commitment to transparency** and accountability regarding decisions, management and the results of this process.

“Somos Choapa will function as the platform for the Choapa province’s sustainable development, helping to articulate the efforts of the regional government, municipalities, the company and surrounding communities.”

Francisco Veloso  
Chairman of the Board at Los Pelambres





## HOW SOMOS CHOAPA WORKS

**Joint diagnosis**  
between communities,  
authorities, Los  
Pelambres and other  
stakeholders.

**Identify issues of  
common interest:**  
city and road safety,  
waste, water, health,  
shelter, education,  
employment,  
promoting productivity  
and local identity.

**Jointly designing and  
executing projects**  
with the communities  
and municipalities.



### IMPACT AND RISKS

Antofagasta Minerals strives to anticipate the risks and social impact of its own operations and projects, and of any mergers or acquisitions it contemplates. In 2015, the due diligence carried out prior to the acquisition of 50% of Zaldívar included a review of its social and environmental issues.

Centinela carried out voluntary consultations regarding its Centinela Second Concentrator Project prior to submitting its environmental impact assessment application. These meetings with the community, led by Centinela's General Manager, allowed the residents, organisations and local authorities to voice their concerns and expectations. This complements the public consultation required by Chilean law as part of the environmental assessment process.

For the operations the principal social impact is road traffic. When addressing road safety each company conducts a regular education and prevention programme. Neighbours also express concerns regarding water and air quality, possible operational incidents and mine safety in the event of an earthquake or a meteorological emergency.

### Participatory monitoring

In the Choapa Valley many residents had concerns regarding water quality, and they did not have access to the results of the monitoring that had been carried out, which the monitoring authority is required by law to provide to them. This lack of information generated mistrust and negative perceptions. The solution was to involve representatives from the community, the mining company and the technical authority in participatory monitoring.

Participatory monitoring started at the end of 2011. We currently have 3 groups to assess the water quality of three sources (River Choapa, Pupio and Camisas estuaries) and one group to assess air quality in Cuncumen. The results are published by the Supervisory Board of the Choapa River on their website and with the community at meetings.

### Emergency preparedness

The company has emergency procedures and co-ordinated action plans with the public services and relevant local authorities. In this context, communities are demanding better information and more participation in the design of these plans. This has been one of the main issues raised at meetings between Los Pelambres and the Caimanes community, which started at the end of 2015.

The tailings dams and other Group facilities are designed to withstand the impact of earthquakes and extreme weather conditions. If there is an emergency the company takes preventive measures (suspending operations if necessary) and provides emergency aid to its neighbours.

A grade 8.4 (on the Richter scale) earthquake hit the central part of the country on the 16th September 2015. The epicentre was only 90 km from Los Pelambres's Mauro tailings dam. Aware of the concerns that the dam generates for the neighbouring Caimanes community, the company has reported to the population about

the state of the facilities and on the day after the earthquake the company organised for community representatives to visit the dam wall, to see that there had been no damage and that it was operating normally.

A risk assessment and review was also conducted by international consultant MWH who specialises in tailings management. The review confirmed that the dam and associated facilities had an adequate response in compliance with international geotechnical seismic engineering criteria for risks such as this earthquake.

**Dams and other facilities are designed to withstand the impact of earthquakes and severe weather conditions.**



## CONFLICT MANAGEMENT

*The Group is promoting a new way of managing both historical and emerging conflicts with communities applying the Somos Choapa principles: participation, transparency, long-term vision and fostering partnerships with the community, the Government and other local stakeholders.*

### CAIMANES AND THE MAURO DAM

Caimanes is a community of 800 inhabitants, located in the Pupio Valley, Choapa province, 13 km from Los Pelambres's Mauro tailings dam. A group of residents has opposed its operation, presenting several claims to the Courts. In this context, in March 2015 a Court of first instance ordered the total or partial demolition of the dam's retaining wall to comply with an earlier Supreme Court ruling<sup>1</sup> which demanded that Los Pelambres present a plan to ensure that the flow and quality of the Pupio stream was unaffected by the dam. In parallel to the defence of this case, which is currently being considered by the La Serena Court of Appeals, Los Pelambres is in reconciliation talks with the community and their

attorneys. The decision to engage in reconciliation talks reflects the Group's conviction that even winning trials will not solve the historic conflict with Caimanes, which has proven detrimental to both parties.

➔ **More information** in 2014 Sustainability Report p.32.

In April 2015, Los Pelambres began talks with representatives of the plaintiffs and their lawyers in search of an agreement. A base condition was set that the contents of any agreement had to be widely discussed within the three communities of the Pupio valley, that is – Caimanes, Pupio and Rincón. A public consultation process began in September 2015.



<sup>1</sup> Supreme Court ruling on this trial is case number 12938-2013.



## Communication, transparency and goodwill

After years of conflict before the courts, dialogue did not come easily. There was a lot of resistance to overcome – within the community and the company – and a minimum basis for mutual trust had to be constructed.

The company hired a professional community dialogue expert to direct the talks using the methodology already tested in the Somos Choapa initiative.

The process to design the agreement was characterised by:

- ▶ Open and frank talks regarding the legally disputed issues – access to water and dam safety – and about other topics of mutual interest.
- ▶ Wide participation: 12 meetings were held that were open to all residents and local organisations which culminated in a consultation with local residents supervised by mutually agreed observers and Chile Transparente, the representative of Transparency International.
- ▶ Full transparency about the contents of the discussions and the agreements reached. All of the residents could participate in any of the forums, and all of the meetings were videotaped and made public on Chile Transparente's website.<sup>1</sup>

### Process status

The community consultation was carried out on 8th December with the participation of 58% of the voting-age residents of the Pupio Valley, with 92% voting in favour of the agreement.

The expert, appointed by the Court of Appeals of La Serena as part of the trial, is yet to state a technical opinion upon the suitability of the works proposed to improve the flow and quality of water, but regardless of the legal outcome, Los Pelambres has committed to move forward in building a new relationship with Caimanes.

**"We are building a new way of engaging with the community. After years of conflict, this first open dialogue process has allowed us to understand the community's legitimate apprehensions and to identify opportunities to work together."**

**Robert Mayne-Nicholls**  
CEO Minera Los Pelambres.

## THE SALAMANCA AGREEMENT

Distressed by a prolonged drought, in February 2015 some Salamanca residents blocked access to the Los Pelambres site demanding that the company immediately built a desalination plant in order to stop it using water from the Choapa River.

Applying the principles of the Group's new local engagement framework, the crisis was resolved by forming a round-table with the community, the local irrigators' association, the municipality, the central Government, local congressmen and Los Pelambres. After some days of discussions, an agreement was reached to address the underlying problem of finding solutions to deal with the effects of the drought.

The Salamanca Agreement considers the evaluation of several public-private initiatives to provide medium and long term solutions to water scarcity in the area. In addition, Los Pelambres pledged to use seawater for any future expansions.

➔ **More information** on p. 47.

<sup>1</sup> Chilean chapter of Transparency International at [www.chiletransparente.cl/project/transparencia-caimanes/](http://www.chiletransparente.cl/project/transparencia-caimanes/)

## CONTRIBUTING TO LOCAL DEVELOPMENT



**2,308**  
direct local jobs

Direct employees that live within the company's area of influence.

### ECONOMIC IMPACT

The Group's operations foster local development by generating employment, encouraging entrepreneurship and transferring knowledge.

Duties and taxes paid by the company, its contractors and workers constitute a significant contribution to national and municipal finances.

In 2015 Los Pelambres contributed 58% of the Coquimbo Region's exports. Together Centinela, Michilla and Antucoya contributed 7% of the Gross Domestic Product of the Coquimbo and Antofagasta Regions.

➔ **More information** regarding the generation and distribution of wealth on p.9.

In addition, the Group dedicated a considerable amount of economic and technical resources to support the development of human capital within its area of influence. In 2015 investment in the community reached US\$21.9 million.

### Local employment

In 2015 nearly half of the Group's workforce was local: 2,308 direct employees. Also 1,113 suppliers are from the Antofagasta or Coquimbo regions (25% of the total number).



During the construction phase of a new project Antofagasta Minerals normally offers apprenticeship programmes for locals to train as mine operators and maintenance technicians. Antucoya trained and then recruited mining operators from the local community of María Elena and will train more in 2016. Centinela's Second Concentrator Project, currently undergoing its Environmental Impact Assessment, will look to recruit locally a significant percentage of the 9,000 workers required during its construction. At the end of 2014 Los Pelambres designed an employability plan to maximize local's access to jobs. The Group also participates in Mining Council initiatives aimed at improving workers qualifications.

### Support for SMEs

The Group's two major mining operations (Los Pelambres and Centinela) have obtained the ProPyme seal from the Economy Ministry, awarded to companies that are committed to paying its small and medium-sized (SMEs) suppliers within a maximum of 30 days. The

## LOCAL EMPLOYABILITY AT LOS PELAMBRES

Within the Somos Choapa's concept of helping to find solutions for local challenges by collaborating with the government and other stakeholders, Los Pelambres designed an employability strategy to maximize neighbours access to good quality jobs.

This strategy includes three lines of work:

- 1. Employment.** Strengthen people's skills by financing the certification of their capabilities through the public programme Chile Valora.<sup>1</sup>
- 2. Intermediation.** Improve information about labour supply and demand by developing a local employment website where vacancies are published and community residents can apply for jobs.
- 3. Venture support.** Strengthen the capabilities of local suppliers. This will be addressed in 2016.

Los Pelambres is also encouraging its contractor companies to hire locally.

The implementation of this strategy requires close cooperation between the mining company and the public sector –such as municipal job agencies, the technical institutes and the national agency Chile Valora; local associations of unemployed people and Los Pelambres main suppliers.

The results of the first year on this employment strategy were that 312 people obtained trade certificates, 1,100 got temporary jobs and 97 got permanent jobs.

<sup>1</sup> Chile Valora is the agency that administrates the national system for the certification of labour skills.



mining companies also supported their SME suppliers in their adoption of the government sponsored electronic invoicing system that simplifies tax payments.

Both companies are involved in the national programme to develop world class suppliers, strengthen innovation and support the internationalisation of Chilean mining suppliers.

#### **Support for farmers and fishermen**

For years Los Pelambres and The Los Pelambres Foundation have financed technical aid for small farmers and the optimisation of their irrigation systems. They have also promoted association among local producers to improve the marketing of their products. They also support Los Vilos fishermen in the development of their fishing areas.

#### **Contribution to the Antofagasta Region**

The Group's mining operations in the Antofagasta Region maintain good relations with local communities and the local municipalities of Sierra Gorda, Mejillones and María Elena, with whom they have an ongoing dialogue and jointly develop community projects.

A partnership between Centinela and the Sierra Gorda municipality financed a new street lighting system with LED technology for the village. This increased energy efficiency and public safety, while reducing light pollution.

#### **SUPPORT AFTER NATURAL DISASTERS**

During 2015 two high impact natural events took place in the regions within our areas of influence. Neither jeopardised the safety of our facilities.

##### **Flood in the Antofagasta Region**

In March 2015 unusual rains hit the Atacama Desert in northern Chile, causing floods that damaged several communities and affected the homes of some workers and contractors from Michilla and Centinela.

Our mining operations offered immediate support. Through the municipalities, they provided machinery to protect critical areas from a possible overflow of water from the creeks and basic supplies to the affected residents. They also contributed materials to repair damaged houses, and affected workers and contractors received economic support.

##### **Earthquake and tsunami in the Coquimbo Region**

In September 2015 the Coquimbo Region was the epicentre of an 8.4 (on the Richter scale) earthquake followed by a tsunami, which caused damage to public infrastructure and several homes on the coast.

Los Pelambres provided immediate support to the Government and emergency services for Los Vilos, Salamanca, Illapel and Canela. From the outset, the company provided drinking water, heavy machinery to clear roads and remove debris, as well as support to the victims.



## CYCLING IN ANTOFAGASTA

Through its participation in the regional public-private alliance for regional development Creo Antofagasta, the Group is contributing to the execution of the Antofagasta en Bicicleta ("Antofagasta by Bicycle") project. This project will build infrastructure for cyclists on the coast in the city promoting both community participation and fitness.

As part of this project, the Group is also sponsoring workshops encouraging the use of this public space. For example, every Sunday the area where the cycle path is to be built is closed to cars to be enjoyed by over 1,500 people on bicycles, skateboards and skates.



# ENVIRONMENTAL RESPONSABILITY

*The protection of the environment is a subject of public interest and increased regulation. Mining generates multiple impacts that we work to prevent and mitigate. When this is not possible, we compensate or remediate these impacts in all phases of the mining cycle, from exploration to closure.*

## OUR APPROACH

The Group's environmental management is framed within Chilean environmental law and specific mining laws and regulations. It is also aligned with the ICMM principles, international best practice and ISO 14001 standards.

In 2015, the group defined its environmental management priorities until 2020. These are to:

- ▶ Ensure compliance with all RCA<sup>1</sup> commitments and implement critical controls for key risks.
- ▶ Ensure early identification of the mining projects' environmental challenges and supervise their impact studies.
- ▶ Propose appropriate strategies to mitigate climate change and protect biodiversity.

The Group has specific standards to manage some of its main environmental aspects such as climate change, biodiversity and mine closure.

Our operations are located in two regions of Chile, with very different natural environments. Los Pelambres is at the head of the Choapa Valley, traditionally dedicated to agriculture and livestock, with a Mediterranean climate in the Valley and high-altitude climate at the mine. It shares this territory with 42 communities running from the slopes of the Andes to the sea, where its port is located. However, Centinela, Michilla, Antucoya and Zaldívar are all situated in the Atacama Desert, one of the most arid places in the world, where there is limited flora and fauna and no communities that live in the immediate vicinity of the mines.

## Legal framework

The Environmental Framework Law is the fundamental basis for environmental regulation in Chile. The four main institutions involved are: The Environment Ministry, which defines public policy on environmental issues. The Environmental Assessment Service, which is responsible for qualifying a project's environmental impact, authorising –or not – its implementation. The Environmental Commission, who supervises compliance with the law and with the environmental commitments contained in the RCA of each company. The Environmental Courts which are subordinated to the Supreme Court.

National law requires projects to be authorized by the Environmental Assessment Service, in a process that includes revision by the concerned national technical agencies as well as citizen consultation. After assessing the potential impact of a project and the suitability of the proposed mitigation measures, the Service can authorise their execution subject to specific commitments contained in a legal document called a Resolución de Calificación Ambiental (RCA). The fulfilment of the RCA is a legal requirement monitored by the Environmental Commission.

Regulations and environmental standards for the extractive industries continue to increase. In 2015 parliamentary discussions continued regarding water rights, glacier protection, waste management, the transport and storage of concentrates and the protection of biodiversity.

<sup>1</sup> Resolución de Calificación Ambiental (RCA) contains specific and legally enforceable commitments whose fulfilment is a condition of the environmental approval of a project granted by the Chilean Environmental Assessment Agency.



### Compliance

Antofagasta Minerals' compliance strategy seeks to ensure two priorities: Control its key environmental risks and fulfil its RCA commitments. Monitoring, auditing and compliance processes were implemented to achieve these priorities. In some cases, it was necessary to engage with the authorities to clarify some of the obligations arising from the RCA. This review contributed to improving some internal processes and made us better prepared to meet new regulatory requirements.

### Certifications

Los Pelambres and Centinela are certified ISO 14001.

### Incidents and fines

There were no spills or other significant environmental incidents in 2015. The strengthening of our preventive management was reflected in the fact that 112 potential environmental incidents were reported, three times more than in the previous year.

During 2015 the Group had 34 inspections on different environmentally related aspects by the Environment Commission, the Water Agency, the Geology and Mining Agency (SERNAGEOMIN) and the Health Service.<sup>1</sup> No fines were received.

**0 operational incidents**  
with significant environmental impact since 2011.

<sup>1</sup> Superintendencia de Medio Ambiente, Dirección General de Aguas y Servicio de Regional de Salud.



# EFFICIENCY AND SEAWATER

*Droughts in recent years are a big concern in the central area of Chile where Los Pelambres operates. The Group has a high water recycling rate and has pioneered the use of seawater in its northern operations.*

## OUR APPROACH

Our water management priorities are:

- ▶ responsible extraction
- ▶ efficiency
- ▶ preventing contamination

All operations have management plans based on water balances, with water quality and quantity targets.

The Group reports its water footprint – consumption by source – using the CDP water programme methodology.<sup>1</sup>



Antofagasta Minerals was proactive in replacing fresh water with seawater in the arid Antofagasta Region, beginning in 1992 when it started producing cathodes with seawater at its Michilla operation. Since its construction in 2010, Esperanza (now Centinela Concentrates) has used seawater to produce copper concentrate. Antucoya, which started in September 2015, also operates with seawater. Moreover, the Centinela Second Concentrator project – which submitted its formal environmental impact assessment application during 2015 – will also use seawater. This alternative will also be considered for future production increases at Los Pelambres, but in this case a desalination plant will be required.

In 2015 the Group used 45,247 thousand m<sup>3</sup> of water, 5% less than the previous year. This variation is mainly due to operational issues and less continental water availability at Los Pelambres. From the total water used by the Group, 45% is seawater and 55% is continental water.

The main user of continental water is Los Pelambres, which is authorised the use 829 l/s, corresponding to 4.3% of the total water rights of the Choapa basin.

## WATER EXTRACTION\*

Water extracted by source in 000's of/m<sup>3</sup>

	2013	2014	2015
<b>CONTINENTAL WATER</b>			
Surface water	15,463	16,628	14,624
Groundwater	7,569	8,397	8,568
Water supplied by third parties	1,417	1,737	1,482
<b>SEAWATER</b>			
Seawater	20,217	20,682	20,573
<b>TOTAL</b>	<b>44,666</b>	<b>47,444</b>	<b>45,247</b>

\* More information on <http://globalwaterresults.cdp.net/>

<sup>1</sup> Carbon Disclosure Project



## Water quality

Water quality is continuously monitored and controlled by the relevant authorities. At Los Pelambres 160 surface and underground points are monitored and the results are published on its web site. Additional participatory community monitoring is also performed regularly.

[\[+ see p. 44\]](#)

The quality of seawater is continuously monitored at Punta Chungo port (Los Pelambres) and the Esperanza port (Michilla, Centinela and Antucoya).

The Group has zero water discharge with none of its operations discharging water out of any of their facilities.

The Group reports its water footprint – including their extraction sources and consumption levels – using the water CDP programme methodology. In 2015, the CDP evaluated companies participating in its water programme and Antofagasta Minerals obtained

grade “B” (on a scale from A to C) in line with other world-class mining companies.

## EFFICIENCY

Maximising efficiency becomes particularly relevant as water has become an increasingly scarce resource and a highly sensitive community issue.

The Group’s operations reuse water from their processes to reduce the need for fresh water. The rate of reused water varies between 72% and 86%, depending on the characteristics of each operation. The balance is the water that remains in the tailings or evaporates.

The efficient use of water is also evidenced in the usage of the thickened tailings deposit at Centinela. In comparison with a tailings dam, this technology uses less water, has less impact on the landscape and is more stable.



**45%**  
of water used  
by Antofagasta Minerals is seawater.

## Salamanca agreement:

### SOLUTIONS FOR THE CHOAPA WATER CHALLENGE

*Los Pelambres is working with the Government, the municipalities and the communities to find solutions to the drought affecting the Choapa valley.*

In February 2015, following a prolonged and severe drought, a group of Salamanca residents blocked the road to Los Pelambres. They demanded that the company immediately built a desalination plant and stop extracting water from the Choapa river, despite the fact the company only uses 8% of the basin's water rights.



Applying its local engagement approach to this crisis, Los Pelambres led a number of meetings attended by demonstrators, members of the community, the municipality, the central Government, other water users and parliamentarians from the area to find a solution

to the Valley's water problem. On conclusion of the meetings they signed a document – the Salamanca Agreement – that identified seven concrete measures to tackle drought in the short, medium and long term, by coordinating efforts of several public and private parties.

Progress in 2015 included:

- ▶ Fulfilling its commitment to use seawater in its future projects, Los Pelambres conducted evaluation studies on building a desalination plant as part of the company's incremental expansion project, which will be submitted to Environmental Assessment Service in 2016. The plant's design considers using some of its spare capacity for pumping seawater to a separate public desalination facility that the government is considering for the area.
- ▶ Collaborating with public agencies to support the construction of a public desalination plant intended to support local farmers, promoted by the Ministry of Public Works.
- ▶ Providing financial aid for a new public-private programme to improve irrigation infrastructure for Salamanca's farmers and to support the rural drinking water associations.
- ▶ Preparing the tender for the pre-feasibility studies for a reservoir at the headwaters in Choapa, carried out in coordination with the agency responsible for the national reservoirs plan. The valley's irrigation report will also be updated.

In 2016 we will continue to advance the Salamanca Agreement initiatives. Also, Los Pelambres will fund a pilot for the integrated management of the Choapa watershed with the national water agency.



We aim to contribute to the sustainable, long-term development of the region, contributing to the implementation of initiatives that promote peaceful co-existence between agriculture, mining and other activities in the Choapa valley.



## DECOUPLING GROWTH FROM EMISSIONS

*Chile is vulnerable to climate change, which has led to higher temperatures and less rainfall in the northern and central parts of the country. In 2015 Antofagasta Minerals developed a standard to address climate change that defines the bases for mitigating emissions of greenhouse gases.*



### OUR APPROACH

Since 2009 the Group has measured and made public its carbon emissions using the Carbon Disclosure Project CDP<sup>1</sup> methodology.

In 2015 Antofagasta Minerals developed a climate change standard that sets out its strategy to mitigate greenhouse gas emissions on the basis of abatement curves.

### CONTEXT

Chile contributes 0.2% of global carbon emissions, and the Government committed to a reduction of 30% in carbon emissions (CO<sub>2</sub>) intensity by 2030. A new emissions tax will come into effect from 2017 that will apply to electricity generators that use fossil fuels.

#### The Group is growing

Antofagasta Minerals is growing. Its CO<sub>2</sub> emissions are likely to increase because of:

- ▶ Ore grades dropping as the existing mines get older.
- ▶ New projects coming into operation.
- ▶ The decision to use seawater.<sup>2</sup>

In this context, the Group's challenge is to continue growing without increasing its emissions at the same rate. The new climate change standard will encourage initiatives to decouple emissions from growth.

<sup>1</sup> The Carbon Disclosure Project is a leading international organisation in the follow-up and communication of the carbon and water footprint. More at [www.cdp.net](http://www.cdp.net)

<sup>2</sup> Electricity required to pump water from the coast to Centinela and Antucoya is provided by a national grid, which is mainly thermally generated.



## MITIGATION STRATEGIES

The Group analysed its current CO<sub>2</sub> emissions to develop its new climate change standard. Because 75% of its emissions are associated with electricity consumption, in order to reduce them we needed to increase the proportion of power supplied from renewable energy sources.

### Renewable Energy

The Group has made a major effort to incorporate clean energy directly into its operations. In this regard, a decision was made years ago to take advantage of the momentum of the conveyor belts at Los Pelambres to generate electricity. But Antofagasta Minerals' indirect contribution is even more relevant as it has fostered the diversification of the sources of power and a reduction of the emissions factor for the central interconnected electricity system, which supplies most of Chile. This achievement is owed to the Group's participation either as an investor in or as customer of projects generating wind, photovoltaic and hydroelectric power.

By the end of 2015, 47% of the energy consumed by Los Pelambres, the Group's main operation, came from renewable sources.

### Emissions reduction projects

The Group's new climate change standard guides the implementation of initiatives to mitigate emission levels from its present operations and future projects. To accomplish this, operations must identify their critical activities and design emission reduction projects that are both technically and economically feasible. The new standard uses the methodology of abasement curves to evaluate and prioritise between operational projects. This methodology allows a comparison of the benefits of each project in terms of its potential for the reduction of CO<sub>2</sub> per tonne of copper produced against the costs of implementing the project. This information is particularly important in the context of the Group's commitment to reduce emissions within a framework of cost restrictions.

During 2016 some efficiency projects that have already been identified will be implemented and should then allow for an emissions reduction targets to be set.

This progress is the result of a joint effort between the various teams responsible for the mining operations, new projects, power supply and environmental management.

The challenge is to continue growing without increasing carbon emissions at the same rate. In order to achieve this, we are implementing specific projects to mitigate our carbon footprint.



## GREENHOUSE GAS EMISSIONS (GHG)\*

Tonnes of CO<sub>2</sub> equivalent

	2013	2014	2015
Scope 1	608,701	593,915	578,118
Scope 2	1,620,706	1,505,997	1,412,760
Total emissions	2,229,407	2,099,912	1,990,878
Intensity of CO <sub>2</sub> emissions Ton CO <sub>2</sub> e/ton Cuf	3.09	2.98	3.24

\* Antofagasta Minerals' greenhouse gas emissions inventory between the years 2012-2015 has been verified by an auditing company recognised by CDP.



### 2015 PERFORMANCE

Antofagasta's emissions have doubled in the past five years mainly due to the start-up of the Esperanza mine (currently part of Centinela) that uses seawater, which is energy intensive.

In 2015 the total emissions by the Group reached 1.9 million tonnes of CO<sub>2</sub>, slightly less than in the previous year. However, the intensity of emissions was 9% higher as production decreased in 2015 by more than emissions.

An increase in emissions is expected in 2016 following the start-up of Antucoya and the acquisition of 50% of Zaldívar in 2015.

The Group has been reporting its emissions to the CDP since 2009 and this information has been externally verified. The 2015 report to the CDP will include: Scope 1 – mainly diesel used by trucks and other mining equipment. Scope 2 – electricity consumption, mainly for the processing plants and the seawater pumping system. Scope 3 (partial)– the purchase of some strategic inputs and the transport of personnel and key cargo.

➔ **More information** on [www.cdp.net](http://www.cdp.net)

### HOW WE MANAGE CLIMATE CHANGE

The main contents of Antofagasta Minerals' corporate standard on climate change are:

- ▶ The identification of the risks and opportunities associated with climate change at each mining operation.
- ▶ The promotion of innovation to improve energy efficiency and the use of clean energy in current operations and future projects.
- ▶ The mitigation of emissions of greenhouse gases at all mining operations.
- ▶ Measuring and reporting results.

The new corporate climate change standard defines the critical activities to ensure its implementation, focussing on:

- ▶ Finding opportunities to reduce emissions at the operations and in the decisions about energy sourcing.
- ▶ Incorporating energy efficiency criteria from the outset for new mining projects.
- ▶ Increasing organisational knowledge and awareness with regard to the challenges of climate change.

# DIVERSIFY WITH RENEWABLE ENERGY

*In a scenario of growing concern regarding climate change, Antofagasta Minerals adopted a leadership role in sourcing non-conventional renewable energy for its operations. Even more significant is the indirect contribution made by the Group when investing and/or contracting supply from projects that contribute clean energy to Chile's main electricity grid.*

## OUR APPROACH

In Chile, the Energy Ministry proposed a 20% energy savings goal by 2025. Due to the size of large mining companies' energy demand, a cooperation agreement has already been signed between the Ministry and the Mining Council, the industry's trade organisation.

Energy accounts for about 15% of Antofagasta Minerals' cash costs. The Group has constantly sought new ways to be more efficient in the use of electricity and fuel, as well as to diversify its supply by using renewable sources.

**47%**  
of the energy

consumed by Los Pelambres  
at the end of 2015 came from  
renewable sources.

## RENEWABLE ENERGY

Antofagasta Minerals has strongly supported renewable energy, enabling the connection of new sources to the main electricity grid.

The Group has invested in three renewable energy generation projects:

- ▶ El Arrayán wind farm, the largest wind farm in Chile, with an installed capacity of 115 MW. It came into operation in 2014. The Group owns 30%.
- ▶ Javiera solar plant, located in Atacama Region III, with an installed capacity of 69.5 MW. The Group participates through Energía Andina<sup>1</sup> with a 40% holding.
- ▶ Alto Maipo, a run-of-river hydroelectric power station, currently under construction, with 531 MW of capacity. The Group has a 40% interest in the project.

By 2019 Los Pelambres will receive 80% of its required energy from renewable sources, through long-term contracts with: El Arrayán wind farm, since 2014; Javiera solar plant, since mid-2015; Conejo solar plant, from mid-2016; and, Alto Maipo which is expected to come into operation in 2019.

## ENERGY EFFICIENCY

In 2015 the Group began a corporate competitiveness and costs initiative with the aim of continuing to improve Antofagasta's competitive position in the short, medium and long term. Energy efficiency is one of its four focus areas.

In 2015 energy efficiency audits took place at Los Pelambres and Centinela and the data gathered served as the basis for the abatement curves developed. Implementation of projects to increase efficiency will start in 2016.

<sup>1</sup> This company is a joint-venture with Origin Energy of Australia.



Almost half of the current power for Los Pelambres comes from renewable sources. No other mining company in Chile has such a high percentage. By 2019, 80% of its required energy will be from renewable sources.

## 2015 PERFORMANCE

Although the Group remains committed to energy efficiency, its consumption will have sustained growth with the construction of new mining projects, aging deposits and increased electricity consumption as a result of using seawater at its operations.

## GROUP ENERGY CONSUMPTION

	2013	2014	2015
Electricity (MWh)	2,592,112	2,593,118	2,519,940
Fuel (diesel) (m³)	201,127	195,538	197,612



# INNOVATION IN TAILINGS MANAGEMENT

*Two serious tailings dam landslides in Brazil (2015) and Canada (2014) increased public concern about the stability of mining waste deposits. Antofagasta Minerals operates its tailing and waste dumps with high levels of safety and will continue to innovate in search of safer and more efficient solutions, while in operation and after closure.*

## OUR APPROACH

Chilean law sets specific requirements for the construction and operation of tailings dams and mining waste dumps. These requirements apply during operation and continue thereafter. Compliance is supervised regularly by the competent authorities.



Any process to separate minerals from rock produces significant amounts of waste material that must be safely deposited in mining dumps or dams. At Michilla, Antucoya, Centinela Cathodes and Zaldívar, this is spent ore. At Los Pelambres and Centinela Concentrates it is tailings.

The Group's main challenge as regards mining waste management is to ensure the physical and chemical stability of Los Pelambres's tailings dams, due to the topographical complexity of the region and the size of the operation.

## TAILINGS DAM MANAGEMENT

The greatest challenge for the design and operation of any dam is regulating the amount of water it can hold and its ability to withstand extreme events and conditions. Mining dams contain water and tailings, which are the waste from the mineral extraction process. Tailings are composed of particulate materials such as fine sands, silts and clays.

Los Pelambres tailings disposal system has two dams, Quillayes and El Mauro. The first is maintained as backup for emergencies. Currently, the mine deposits its tailings in the Mauro dam, in the Pupio valley, 13 km from the nearest community called Caimanes. This dam has an authorised capacity of 1,700 million tonnes.

### Preventing pollution

To ensure the chemical stability of mining waste there needs to be strict separation between natural water and process water. For this reason, a key prerequisite for the design of both the Quillayes and El Mauro dams was to prevent natural water from coming into contact with the tailings. This is achieved through the construction of a system of collection channels along the contours above the edge of the dams' rims. This system collects the water above the dam and takes the water to a return point, located below the dam wall.

The quantity and quality of water that Los Pelambres must return to the Pupio estuary at this point, was established in the dam's legal permits. From this point, the water continues its natural runoff without risk of contamination,

MINING WASTE

which is controlled by the national water agency<sup>1</sup> and is monitored by the local community.

However, with regard to the waters of the Pupio, there is a conflict with some residents of Caimanes community. In 2015 Los Pelambres initiated a ground-breaking consultation process with the neighbours to seek a solution to the dispute. [\[+ see p. 46\]](#)

Response to earthquakes

Beyond the preventive measures included in the dams’ designs, the company has emergency plans and procedures at El Mauro in the event of an earthquake. Over the past two years, the company has redoubled its efforts to improve how it informs residents about the plans and how it coordinates with the authorities and the community.

On 16th September there was an 8.4 magnitude (on the Richter scale) earthquake, with its epicentre on the coast, about 90 km from the Mauro dam. The dam withstood the two minute earthquake and the subsequent aftershocks. Emergency protocols were immediately activated including the first inspection of the dam wall, pipes and roads. The next day community representatives were invited to inspect the facilities. A few days later, a well-known international consultancy firm inspected the facilities. On 17th October this firm issued a report in which it noted the dam remained stable, complying with the international earthquake geotechnical engineering criteria for events of this nature.

INNOVATION IN TAILINGS



The Group was a world pioneer when it built its first project with large scale thickened tailings deposit, which opened in 2011. Thickened tailings deposits are an alternative to traditional tailings dams. This technology uses thickeners to reduce the amount of water in the tailings until it reaches a paste-like consistency that can be deposited in layers. It has several important environmental benefits including greater water recovery, improved physical and chemical stability, and better control of particulate emissions. However, its technical feasibility

VOLUME OF MINING WASTE

Million tonnes

	2013	2014	2015*
Waste rock	232	236	196
Tailings	95	92	90
Spent ore	17	19	15

\* Reductions reflect a decrease in production.

<sup>1</sup> Dirección General de Aguas DGA.



depends on certain natural conditions – mainly related to the characteristics of the material and soil, which are available in the desert where it operates at Centinela.

Despite its obvious advantages, implementing large-scale thickened deposits is quite complex. Achieving the design levels of thickening has taken longer than planned and the authorities have issued the relevant temporary permissions.

## NON-MINING WASTE

### VOLUME OF NON-MINING WASTE

Tonnes

	2014	2015*
Domestic waste	4,542	4,263
Industrial waste		
· Hazardous	6,487	6,643
· Non Hazardous	32,838	38,930

\* Reductions reflect a decrease in production.

Our processes produce hazardous industrial waste such as oils, rags and used batteries, which are stored for later disposal or recycling in accordance with legal requirements. Used oils are reused in the preparation of explosives for blasting or are incinerated as an alternative fuel to produce cement.

At the end of 2014 a standardised management procedure was introduced for the handling of non-hazardous waste (mainly scrap metal, wood and cardboard) at all of the Group's operations, which led to an improvement in the recycling rate.

### WASTE TREATMENT

Tonnes

	2014	2015
Recycled	22,895	32,155
Reused	3,156	3,371
Composted	76	67
Incinerated	261	0
Recycling rate	60%	71%

## PREVENTIVE MANAGEMENT FOR AIR QUALITY

*Maintaining air quality is important to protect the health of workers and the neighbouring communities. Mining generates particulate matter emissions, which join the natural dust in the atmosphere. Managing air quality is a priority for Los Pelambres and Centinela, which are the Group's operations closest to inhabited areas.*

### OUR APPROACH

In Chile, there are strict rules that set legal parameters for air quality.

Our operations are proactive in managing air quality through permanent operational measures to mitigate emissions. We also have in place an early warning system that allows us to adopt extraordinary measures to prevent critical episodes when weather conditions are adverse.

### MITIGATION AND PREVENTION

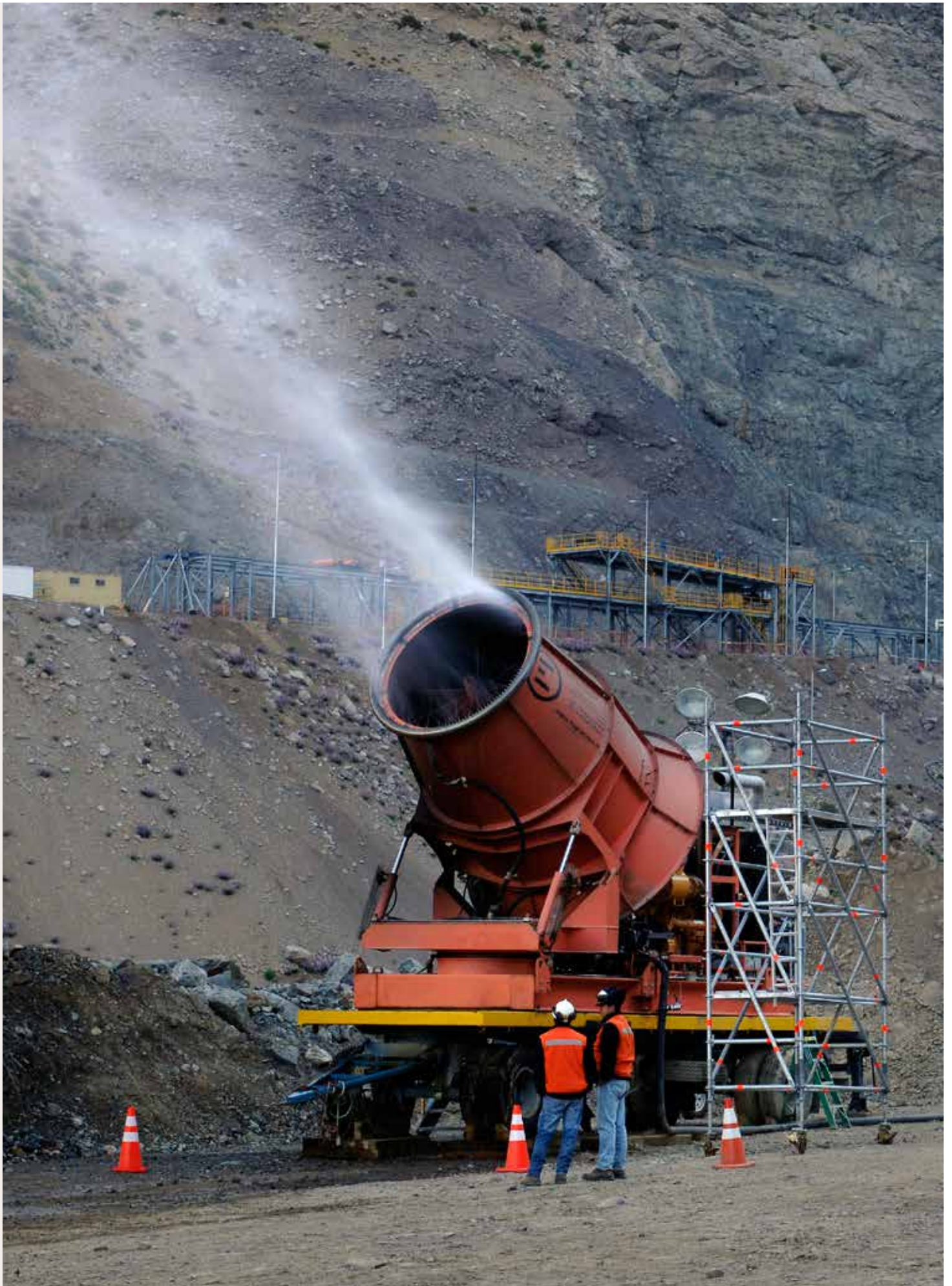
Our operations monitor air quality at camps and in communities that are close to the mining sites.

Los Pelambres and Centinela have adopted various operational measures to keep their emissions below the legal limit. For example, road wetting and using a dust reduction system with mist canons in the mine area; using moisturising foam to reduce dust emission in the crushing process, the stockpile and the conveyor belts, that are covered and kept damp by watering with sprinklers. In Antucoya, the focus is to reduce emissions in the crushing area.

Due to the distance, natural ventilation and topography, emissions from Centinela's do not significantly affect the town of Sierra Gorda. However in view of the deterioration









## AIR QUALITY

Annual average concentration of PM<sub>10</sub> in micrograms per m<sup>3</sup>

	2013	2014	2015
Los Pelambres	45	46	37
Centinela	46	39	40
Michilla	48	37	n/a*

\* Not available. Not measured as the mine ceased operations at the end of the year.

of local air quality, Centinela championed the formation of a commission made up of the four mining companies that operate in the area, the municipality and the regional environmental authority to help to jointly address the problem. At the end of 2015, an external firm was awarded the contract to review the emissions by the four companies. This study should identify the sources of the emissions that are impacting Sierra Gorda and propose control measures.

### Predictive models

Los Pelambres and Centinela have developed models to anticipate climatic phenomena that

may affect air quality and the impact on emission from the operations. This information allows operational decisions to be made to prevent critical particulate material saturation episodes. For example, it is possible to reschedule blasting or temporarily suspend some mining activity.

Air quality is measured by the concentration of particulate matter at monitoring points defined together with the authorities. In 2015 emissions were kept below the maximum allowed in residential areas. Good results at Los Pelambres confirm the usefulness of the predictive model and the maturity of its prevention and mitigation systems.



# PRESERVING THE NATURAL HERITAGE

*Chilean legislation and international best practices recognise the growing importance of protecting ecosystems, biodiversity and archaeological heritage. Antofagasta Minerals prevents, mitigates and compensates for its impacts. In addition, it seeks opportunities to add value by supporting the rescue and dissemination of the natural and cultural heritage in the regions where it operates.*

## OUR APPROACH

The Group's efforts to protect biodiversity and heritage are concentrated in the Choapa Valley, where there are some ecosystems and endemic species that merit special protection.

In 2015 Antofagasta Minerals developed its first biodiversity standard to avoid or mitigate losses and promote biodiversity gain. This standard was developed in conjunction with the Wildlife Conservation Society and is based on ICMM's position statement on Biodiversity and Protected Areas.

# 19,504 hectares

of high environmental value ecosystem  
has been preserved by the Group.

## CONTEXT

Antofagasta Minerals does not have operations in protected areas. However, within Los Pelambres's area of influence there are some locations particularly rich in biodiversity which the company has sought to enhance. In 2000 it restored the wetland at Conchalí lagoon – that had become an illegal rubbish dump – which eventually became listed as a world Ramsar Site. It also protects one of the few remaining Chilean palm forests located in Monte Aranda. In 2014 it acquired part of the Santa Ines hill to ensure the conservation of its 52 hectares of rare relic forest.

Another focus is to protect marine biodiversity around the company's ports at Punta Chungo in Los Vilos and Esperanza in Michilla.

Operations located in the desert present different biodiversity challenges that are mainly associated with the protection of scarce fauna and avifauna in the area – such as the garuma and the gaviotín chico seagulls, and the Atacama lizard.

## New standard

Antofagasta Minerals' biodiversity standard proposes a hierarchy of good practices, to meet its objectives to:

- ▶ Avoid or reduce as much as possible the impact of the Group's operations on biodiversity and associated ecosystems services.
- ▶ Restore and/or compensate appropriately for unavoidable impact.
- ▶ Generate additional benefits to the environment.
- ▶ Increase biodiversity awareness within the organisation.

In 2016 the focus is to collect better information about the areas of biodiversity potentially impacted by Los Pelambres' operations in order to assess the adequacy of the current measures for prevention, mitigation and/or compensation.

### CULTURAL HERITAGE

Archaeological remains of the first inhabitants of the region and of past mining activities have been found in the areas where we operate. There is also an intangible heritage constituted by the traditions of the current communities. The Group respects and helps to preserve this heritage.

In 2014 Los Pelambres inaugurated an exhibition room of local culture in Monte Aranda and in 2015 built an archaeological rock park.

In the Antofagasta Region the Group is involved in initiatives for the conservation and enhancement of cultural heritage, supporting organisations such as PROA, PROLOA and the foundation to rescue the abandoned Chacabuco saltpetre station. They also support publications that preserve the record of local history.



### ARCHAEOLOGICAL ROCK PARK

*Los Pelambres built a 25 hectare park, with 3,700 metres of trails, to exhibit the 242 blocks of stones with petroglyphs it rescued during the construction of the Mauro dam. This park was one of the commitments contained in the project's environmental permits.*

It was not easy to rescue 242 rocks scattered around the Pupío valley, collect, transport them and set them in the Archaeological Rock Park in Monte Aranda. The larger pieces weighed over twenty tonnes and one rock weighed 68 tonnes. The task began in 2005 with the identification, characterisation and archaeological rescue of the blocks by a large multidisciplinary team of engineers, archaeologists, conservators, curators, specialised technicians and machine operators.

The Park's trails are designed to enable visitors to see as many of the blocks as possible. The rock art is displayed within the cultural landscape of north-central Chile at the time combining three themes: one archaeological, which contextualises and explains the rock art; another environmental, inviting the observation of the local flora and fauna; and one curatorial, revealing the knowledge gained from the archaeological studies conducted as part of this project.

The Rock Park was completed in 2015 and is now in the process of obtaining final approval from the National Monuments Council before being opened to the public.

The Park is adjacent to the Peasant Culture Exhibition (Sala de Exhibición Campesina ) the showroom that opened in 2014 for visitors to learn about local history and traditions. The exhibits were collected through a participatory process with the Caimanes community, especially senior citizens who shared their memories of how people lived in this area before there were paved roads, electricity, television or the internet.



# RESPONSIBLE FROM EXPLORATION TO CLOSURE

*Due to its extensive mining history, Chileans are especially sensitive to unplanned mine abandonment and national law has made mine closure plans mandatory. These plans must identify, prevent and reduce the risks and impacts on people and the environment, which could occur after mine closure.*

## OUR APPROACH

All Antofagasta Minerals operations have updated closure plans approved by National Mining Agency (Sernageomin<sup>1</sup>).

From 2012 Chilean legislation has required mine operators to plan for the closure of their operations and to provide financial resources for the implementation of these plans, which must be updated every five years.

Beyond the legal minimum, which is focused on ensuring the physical and chemical stability of mine facilities, good closure plans also consider other environmental and community issues. In 2015 the Group began drafting a corporate standard to design its closure plans with standardised criteria and calculations.



## CLOSURE PLANS

Michilla, Los Pelambres, Centinela, Antucoya and Zaldívar all have Sernageomin-approved closure plans. In 2015, the Group agreed the financial amounts to guarantee these plans in agreement with the mining authority.

The closure plans apply at the:

- ▶ **Project stage:** According to the new law, new mining projects must include plans for their closure. The approval of a closure plan is a requirement to obtain the environmental permit to build the mining project.
- ▶ **Operation stage:** At this stage, it is normal that some facilities become obsolete for various reasons. Under the new law these facilities also require closure plans.
- ▶ **Closure stage:** The objective is to implement the actions and measures to prevent, mitigate and control risks that could arise after the mining operation has closed. This plan details measures to ensure the physical and chemical stability at the mining site, in compliance with the applicable legal and environmental regulations.

The closure can be permanent or temporary (care and maintenance), and can apply to all or part of the mining facilities. The Group's first experience with this was at Michilla, which was put under care and maintenance in January 2016.

<sup>1</sup> Sernageomin is the Spanish acronym for National Service of Geology and Mining, which is responsible for authorising all mining closure plans in Chile.



### MICHILLA

In December 2015 Antofagasta Minerals ceased to operate the Michilla mine, which the company had acquired in the 1980's. It is a relatively small operation, located in the desert, far from the only community in the area. In 2014, it produced 47,000 tonnes of copper, with a workforce of 726 workers and 1,177 contractors.

After announcing the decision to cease operations, a special plan was implemented to ensure the safe and orderly transition of the mine from the operational stage to care and maintenance. This plan was designed and executed by a dedicated working group composed of safety, human resources, environmental and corporate affairs.

The transition plan was implemented through 2015 and its focus was on:

- **Personal safety:** The priority was to uphold safety standards for workers and contractors until the last day of operations. Still, regrettably one of our contractors suffered a

fatal accident. This led to intensified efforts to help all of the Group's contractors in the adoption and implementation of our safety and health framework.

- **Community:** Caleta Michilla is the only community within Michilla's area of influence. It has around 800 inhabitants with whom the mining company has maintained a harmonious relationship for over thirty years. Michilla's social commitments were transferred to Centinela, who manages the Esperanza port in the same area.
- **Employees:** Labour relations were managed with transparency and respect. The closure was announced one year in advance and before the start of the collective negotiation process. The retirement scheme offered had benefits beyond the legal and contractual commitments. It included emotional support, counselling and outplacement services. Also supervisors received special preparation and support to manage the layoffs



An effort was made to help reskill employees. Special courses were offered for mine operators. Supervisors were offered the opportunity of taking a university diploma, which 30% of them took-up. In addition, a major effort was made to relocate staff within the Group. As a result, 25% of Michilla's workers have been reemployed within Antofagasta Minerals.

By March 2016 Michilla had ceased operating and maintained only a small crew of workers to maintain the facilities and mitigate any significant environmental impact that may occur.

The management of the process was praised by our workers and contractors, neighbours of Michilla and the authorities. Also, the successes and errors in the way this process was carried out are being collected as lessons for the future.

### **CERRO AMARILLO MINING DUMP**

Mining waste dumps are where the sterile material removed when mining is deposited. In Chile, the location, operation and closure of these dumps must be authorised by the national environmental and mining authorities.

The Cerro Amarillo mining waste dump was built by Los Pelambres near the mine, in the high Andes near the border with Argentina. It was used from 2004 until 2011 in accordance with the Chilean authorisation required for its construction and operation. It ceased to be used when Los Pelambres became aware of a problem with the interpretation of the exact location of the border in that area.

In 2014, Glencore, the Swiss mining company that owns the Pachon mining project in Argentina, adjacent to Los Pelambres, filed a civil lawsuit against Los Pelambres in Argentina, accusing it of polluting the area and demanding that the material be removed and returned to Chile. It also made a criminal complaint in March 2015. According to the available analysis, the Cerro Amarillo mining waste dump has caused no pollution of the water in the area.

In August 2015, Los Pelambres presented a closure plan for Cerro Amarillo and a plan to remove the tyres stored on it. As is required by law and international standards, the plan ensures the physical and chemical stability of the dump and establishes permanent monitoring to ensure that it remains so.

As at the date of this Sustainability Report, the Argentine authorities had yet to rule on Los Pelambres's plan's suitability. It is not possible to start any work without first receiving authorisation from the Argentine authorities.

# VERIFICATION REPORT



(A free translation from the original prepared in Spanish.)

Santiago, May 4, 2016

Messrs. Shareholders and Directors  
Antofagasta Minerals S.A.

## Independent Professionals Report

We have reviewed the 2015 Sustainability Report of Antofagasta Minerals S.A., for the year finalized on December 31, 2015. Antofagasta Minerals S.A. management is responsible for the 2015 Sustainability Report.

Our review was performed in accordance with the attestation work standards established by the Chilean Institute of Public Accountants. A review is substantially less in scope than an exam, the objective of which is the expression of an opinion regarding the 2015 Sustainability Report. Consequently, we do not express such an opinion.

Within the scope of our work we reviewed the adequacy and implementation of the G4 Sustainability Reporting Guidelines of the Global Reporting Initiative (GRI G4), the GRI Mining and Metals Sector Supplement and the compliance of the Sustainable Development Principles and Positions Statements of the International Council on Mining and Metals (ICMM).

In addition, we performed the following procedures:

- work planning according to relevance and volume of the information presented in the 2015 Sustainability Report;
- understanding of the materiality process conducted by Antofagasta Minerals S.A., the material aspects identified, management approaches and selected indicators, in accordance with the "core" option under the GRI G4, including indicators of the GRI Mining and Metals Sector Supplement developed in conjunction with the International Council on Mining and Metals (ICMM);
- review of the compliance of the Sustainable Development Principles and Positions Statements of the ICMM;
- interviews with different executives responsible for the information in the 2015 Sustainability Report;
- verification, based on testing, that the data included in the 2015 Sustainability Report is consistent with the documentary evidence reviewed and/or comes from verifiable supporting information sources;
- verification that the greenhouse emissions inventory information has been verified by an independent third party;
- verification that the financial information included in the 2015 Sustainability Report is derived from accounting records or from audited financial statements as of December 31, 2015 by another firm of independent auditors.

The verified and the unverified indicators are detailed on pages 76 to 79 of the 2015 Sustainability Report.

Based on our review, we have no knowledge that the 2015 Sustainability Report of Antofagasta Minerals S.A., for the year finalized as of December 31, 2015, is not presented in all its material aspects, in accordance with the "core" option of the sustainability reporting guidelines G4 of the Global Reporting Initiative.

Colin Becker

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This review was performed according with the attestation work standards established by the Chilean Institute of Public Accountants which is comparable with the Limited Assurance engagement of the International Standard on Assurance Engagements (ISAE) 3000.



# ICMM PRINCIPLES

ICMM PRINCIPLE		PAGE NUMBER
1	Implement & maintain ethical business practices and sound systems of corporate governance.	14-16, 20-22
2	Integrate sustainable development considerations within corporate decision-making process.	10, 13-17
3	Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by our activities.	20-22
4	Implement risk management strategies based on valid data and sound science.	18
5	Seek continual improvement of our health and safety performance.	25, 29-33
6	Seek continual improvement of our environmental performance.	24, 52-62, 66-67
7	Contribute to conservation of biodiversity & integrated approaches to land use planning.	24,69
8	Facilitate & encourage responsible product design, use, re-use, recycling & disposal of our products.	Not applicable <sup>1</sup>
9	Contribute to the social, economic & institutional development of the communities in which we operate.	25, 40-45, 48-51
10	Implement effective and transparent engagement, communication & independently verified reporting arrangements with our stakeholders.	25-27, 46-47

ICMM POSITION STATEMENT	PAGE NUMBER
Mining and Protected Areas	69
Indigenous People and Mining	22
Climate Change	58-60
Mining: Partnerships for Development	26,27, 40-43
Mercury Risk Management	Not applicable <sup>2</sup>
Transparency of Mining Revenues	Not applicable <sup>3</sup>

<sup>1</sup> Antofagasta produces raw materials.

<sup>2</sup> Antofagasta does not use or produce mercury.

<sup>3</sup> Antofagasta Minerals only has operations in Chile, a country which has not adhered to the Extractive Industry Transparency Initiative EITI.

# GLOBAL REPORTING INITIATIVE (GRI-G4) INDEX

## Core Option

GENERAL STANDARD DISCLOSURES	PAGE NUMBER	EXTERNAL VERIFICATION
STRATEGY AND ANALYSIS		
G4-1	2, 3	Verified p. 74
G4-2	2, 3, 18, 24, 25. Annual Report 2015 Antofagasta plc (pp. 32-38)	Verified p. 74
ORGANIZATION PROFILE		
G4-3	01	Verified p. 74
G4-4	4, 5. Annual Report 2015 Antofagasta plc (pp. 2, 3, 25)	Verified p. 74
G4-5	Corporate office located in Santiago, Chile.	Verified p. 74
G4-6	4, 5, 10, 11. Annual Report 2015 Antofagasta plc (pp. 2, 3)	Verified p. 74
G4-7	Antofagasta Minerals is a public listed company.	Verified p. 74
G4-8	8. Annual Report 2015 Antofagasta plc (pp. 25, 26, 138)	Verified p. 74
G4-9	4, 5, 8, 9	Verified p. 74
G4-10	4, 5, 9, 35, 37	Verified p. 74
G4-11	37	Verified p. 74
G4-12	8, 9, 28. Annual Report 2015 Antofagasta plc (pp. 12-18)	Verified p. 74
G4-13	4	Verified p. 74
G4-14	52, 53	Verified p. 74
G4-15	15, 16	Verified p. 74
G4-16	16, 27	Verified p. 74
MATERIAL ASPECTS AND BOUNDARIES		
G4-17	Antofagasta plc Annual Report 2015 is the controller group of Antofagasta Mineral and Ferrocarriles de Antofagasta, not covered in this Sustainability Report.	Verified p. 74
G4-18	81	Verified p. 74
G4-19	81	Verified p. 74
G4-20	80	Verified p. 74
G4-21	80	Verified p. 74
G4-22	37	Verified p. 74
G4-23	This Report only covers Antofagasta Minerals, same as in its 2014 edition.	Verified p. 74
STAKEHOLDER IDENTIFICATION		
G4-24	28	Verified p. 74
G4-25	The Group has identified its main stakeholders as those who are part of its value chain, those who might be impacted by its operations and those who might impact the business.	Verified p. 74
G4-26	26, 27, 81	Verified p. 74
G4-27	56, 63, 64, 72	Verified p. 74

GENERAL STANDARD DISCLOSURES	PAGE NUMBER	EXTERNAL VERIFICATION
<b>REPORT PROFILE</b>		
G4-28	01	Verified p. 74
G4-29	Sustainability Report 2014 Antofagasta Minerals (April 2015)	Verified p. 74
G4-30	01	Verified p. 74
G4-31	01	Verified p. 74
G4-32	01. 76	Verified p. 74
G4-33	01. 74. This review is comparable with the Limited Assurance engagement of the ISAE 3000 standard.	Verified p. 74
<b>GOVERNANCE</b>		
G4-34	14. Annual Report 2015 Antofagasta plc (pp. 72,73)	Verified p. 74
G4-35	14, 15. Annual Report 2015 Antofagasta plc (pp. 72, 73, 93, 94)	Verified p. 74
G4-36	14, 15. Annual Report 2015 Antofagasta plc (pp. 93, 94)	Verified p. 74
G4-37	Annual Report 2015 Antofagasta plc (pp. 112-113)	Verified p. 74
G4-38	14. Annual Report 2015 Antofagasta plc (pp. 74-76)	Verified p. 74
G4-39	14. Annual Report 2015 Antofagasta plc (p. 75)	Verified p. 74
G4-40	Annual Report 2015 Antofagasta plc (pp. 90-92)	Verified p. 74
G4-41	20	Verified p. 74
G4-42	14. Annual Report 2015 Antofagasta plc (p.72)	Verified p. 74
G4-43	Annual Report 2015 Antofagasta plc (pp. 82-84)	Verified p. 74
G4-44	Annual Report 2015 Antofagasta plc (p. 84)	Verified p. 74
G4-45	14, 18. Annual Report 2015 Antofagasta plc (pp. 72, 81, 86-89)	Verified p. 74
G4-46	14,15. Annual Report 2015 Antofagasta plc (pp. 72, 81, 86-89)	Verified p. 74
G4-48	Annual Report 2015 Antofagasta plc (p. 93)	Verified p. 74
G4-51	Annual Report 2015 Antofagasta plc (pp. 96-111)	Verified p. 74
G4-52	Annual Report 2015 Antofagasta plc (pp. 96-111)	Verified p. 74
<b>ETHICS AND INTEGRITY</b>		
G4-56	16, 20, 23	Verified p. 74
G4-57	20, 21	Verified p. 74
G4-58	20, 21	Verified p. 74

SPECIFIC STANDARD DISCLOSURES	PAGE NUMBER	EXTERNAL VERIFICATION
<b>STRATEGY, GOVERNANCE AND ETHICS</b>		
Ethics and integrity		
DMA	20	Verified p. 74
G4-SO4	20, 21	Verified p. 74
G4-SO5	20	Verified p. 74
G4-SO6	27	Verified p. 74
Compliance		
DMA	19	Verified p. 74
G4-EN29	53	Verified p. 74
Risk Management		
DMA	18	Verified p. 74
Business development		
DMA	10-13	Verified p. 74
G4-EC1	8, 9	Verified p. 74
Corporate governance		
DMA	14	Verified p. 74
Human Rights		
DMA	21, 22	Verified p. 74
G4-HR5	22, 37	Verified p. 74
G4-HR8	22	Verified p. 74
<b>ENVIRONMENT</b>		
Water		
DMA	54	Verified p. 74
G4-EN8	54-55	Verified p. 74
G4-EN9	54	Verified p. 74
G4-EN10	55	Verified p. 74
Mining waste		
DMA	63-64	Verified p. 74
G4-EN23	65	Verified p. 74
G4-MM3	64	Verified p. 74
Air quality		
DMA	66-68	Verified p. 74
G4-EN21	68	Verified p. 74
Mine closure		
DMA	71-73	Verified p. 74
G4-MM10	71	Verified p. 74
Energy		
DMA	61-62	Verified p. 74
G4-EN3	61-62	Verified p. 74
Climate change		
DMA	58-60	Verified p. 74
G4-EC2	58, 59	Verified p. 74
G4-EN15	59-60	Verified p. 74
G4-EN16	59-60	Verified p. 74
G4-EN18	59-60	Verified p. 74
Biodiversity and heritage		
DMA	69-70	Verified p. 74
G4-EN11	69	Verified p. 74
G4-EN13	69	Verified p. 74



SPECIFIC STANDARD DISCLOSURES	PAGE NUMBER	EXTERNAL VERIFICATION
<b>COMMUNITY</b>		
<b>Incidents and socio-environmental conflicts</b>		
DMA	20, 40, 46, 52-53	Verified p. 74
G4-EN24	53	Verified p. 74
G4-SO11	41, 44-47	Verified p. 74
<b>Contribution to local development</b>		
DMA	40-43, 48	Verified p. 74
G4-EC8	48-49	Verified p. 74
G4-EC9	8, 48-49	Verified p. 74
G4-EC7	47	Verified p. 74
G4-SO1	41-45, 50-51	Verified p. 74
<b>Stakeholders</b>		
DMA	26-28	Verified p. 74
<b>Social impact</b>		
DMA	40	Verified p. 74
G4-SO2	40-41, 46, 47	Verified p. 74
<b>WORKERS AND CONTRACTORS</b>		
<b>Safety and health</b>		
DMA	29-33	Verified p. 74
G4-LA6	31, 32	Verified p. 74
<b>Labour relations</b>		
DMA	34-37	Verified p. 74
G4-LA12	37	Verified p. 74
G4-HR4	37-38	Verified p. 74
MM4	37	Verified p. 74
<b>Job quality (including training)</b>		
DMA	34-35	Verified p. 74
G4-LA2	37	Verified p. 74
G4-LA9	35	Verified p. 74
G4-LA10	35, 37	Verified p. 74
<b>Contractors</b>		
DMA	38	Verified p. 74
G4-LA15	38	Verified p. 74
<b>EMERGENCY PREPAREDNESS</b>		
DMA	45	Verified p. 74

G4-20, 21: Boundary of each material aspect within and beyond the organisation

DIMENSION	MATERIAL ASPECT	BOUNDARY: WHERE DO IMPACTS OCCUR?					
		WITHIN THE GROUP					OUTSIDE THE GROUP
		AMSA Group	Los Pelambres	Centinela	Michilla	Antucoya	
Strategy, governance, ethics	Ethics and integrity	x	x	x	x	x	x (contractors)
	Compliance	x	x	x	x	x	x (contractors)
	Risk management	x	x	x	x	x	x (contractors)
	Business development	x	x	x		x	
	Corporate governance	x					
Environment	Water	x	x	x	x		
	Emergency preparedness	x	x	x	x	x	
	Mining waste		x	x	x		
	Air quality		x	x	x		
	Mine closure	x	x	x	x	x	
	Energy	x	x	x	x		
	Heritage		x	x	x		
	Climate change	x	x	x	x		
	Biodiversity	x	x	x	x	x	
Society	Socio-environmental incidents or conflicts	x	x	x	x	x	
	Contribution to local socio-economic development		x	x	x	x	
	Stakeholder engagement	x	x	x	x	x	
	Social impacts		x	x	x	x	x (contractors)
Employment	Safety and health	x	x	x	x	x	x (contractors)
	Labour relations	x	x	x	x	x	x (contractors)
	Contractors	x	x	x	x	x	x (contractors)
	Job quality	x	x	x	x	x	x (contractors)
	Talent attraction and retention	x	x	x	x	x	

# MATERIALITY ANALYSIS

Antofagasta Minerals conducted a formal process to determine the material issues to be contained in this Sustainability Report.

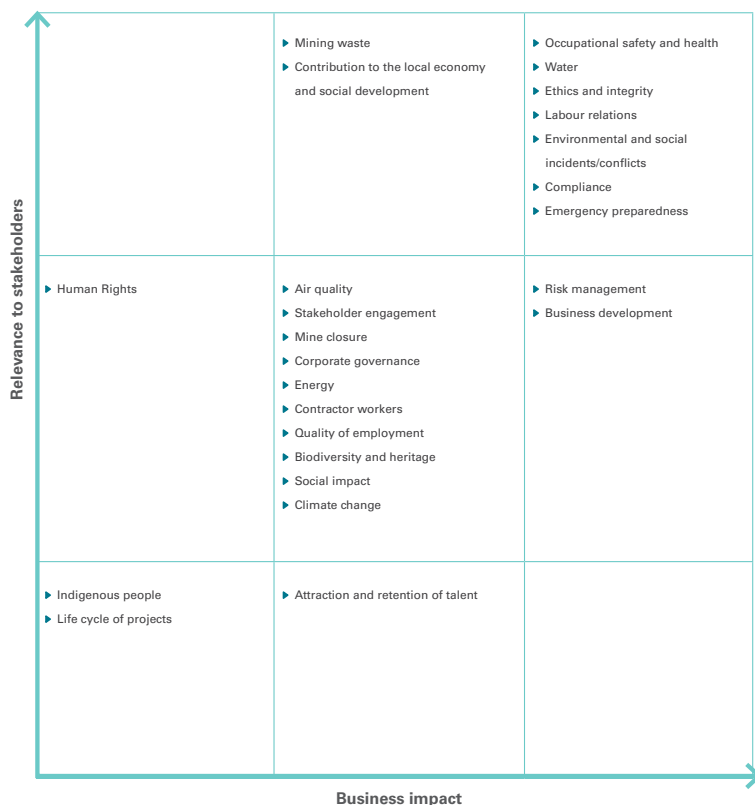
The materiality matrix from the previous year was updated considering the following perspectives:

- ▶ **Importance to stakeholders:** topics of greatest relevance to sector analysts and issues<sup>1</sup> raised by the media during 2015.
- ▶ **Impact on business:** analysis carried out internally.

The issues identified have been classified in the diagram below.

## MATERIAL ISSUES MATRIX - 2015

Antofagasta Minerals



<sup>1</sup> Sources: Reports and benchmarks by BlackRock, Sustainalytics and Vigeo.

# THE KEY

## SUSTAINABLE PERFORMANCE DATA



INDICATOR	UNIT / CALCULATION FORMULA	2013	2014	2015
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### ECONOMIC

Production	Tonnes of copper	721,200	704,815	630,300
Revenue from mining sales	US\$ million	5,639.1	4,984.7	3,278.5
EBITDA	US\$ million	2,547.7	2,077.8	832.3
Distributed value	US\$ million	2,509.1	2,387.8	713.6

### SAFETY

All Injury Frequency Rate (AIFR)	Number of accidents during the year per million hours worked. Considers employees and contractors.	3.9	5.0	6.9
Lost Time Injury Frequency Rate (LTIFR)	Number of accidents with lost time during the year per million hours worked. Considers employees and contractors.	1.1	1.1	1.1
Near Miss Index	Number of near misses reported during the year per million hours worked. Considers employees and contractors.	n/a	7.8	13.5
Fatal accidents	Number of fatal accidents. Considers employees and contractors.	2	5	1

### EMPLOYMENT

Employees	Annual average at operations and projects, excluding Zaldivar.	4,228	4,683	4,586
Contractors	Annual average at operations and projects, excluding Zaldivar.	14,424	19,542	14,892
Women workers	Percentage of women with respect to total employees.	8%	10%	10%
Trade unions	Total number of unions in the Group including Zaldivar.	8	8	8
Union affiliation	Percentage of unionized employees, excluding Zaldivar.	53%	55%	59%
Strikes	Number of strikes in the year.	0	0	0
Training	US\$ million	n/a	n/a	2.6



INDICATOR	UNIT / CALCULATION FORMULA	2013	2014	2015
<b>COMMUNITY</b>				
Local employment	Percentage of employees living in the Antofagasta or Coquimbo regions.	n/a	57%	56%
Local suppliers	Percentage of suppliers from the Antofagasta or Coquimbo regions.	n/a	22%	25%
Community investment	Contributed to community projects by the mining operations and Fundación Minera Los Pelambres. US\$ million.	\$ 26.6	\$ 31.1	\$ 21.9
<b>ENVIRONMENT</b>				
Environmental incidents	Number of operational incidents with environmental impact.	0	0	0
Environmental fines	Number of fines received.	0	2	0
Water consumption	Thousand m <sup>3</sup>	44,666	47,444	45,247
Seawater	Percentage of seawater with respect to total.	45%	44%	45%
GHG emissions	Tonnes of CO <sub>2</sub> equivalent	2,229,407	2,099,912	1,990,878
GHG emission intensity	Tonnes of CO <sub>2</sub> equivalent per tonne of fine copper.	3.09	2.98	3.24
Electricity	MWh	2,592,112	2,593,118	2,519,940
Fuel	m <sup>3</sup>	201,127	195,538	197,612
Waste management	Percentage of waste recycled with respect to total.	n/a	60%	71%
Ecosystems of high biodiversity value preserved	Hectares.	n/a	n/a	19,504

n/a = not available.



## 2015 SUSTAINABILITY REPORT

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### **Design and production**

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This Report complements Antofagasta plc Annual Report and Financial Statement 2015, available at [www.antofagasta.co.uk](http://www.antofagasta.co.uk)

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