

**lundin mining**

2017

SUSTAINABILITY  
REPORT



Lundin Mining Corporation is a diversified Canadian base metals mining company with operations in Chile, Portugal, Sweden, and the USA, primarily producing copper, nickel and zinc.



**OUR COMMITMENT TO THE UN GLOBAL COMPACT**

Lundin Mining Corporation joined the United Nations Global Compact in 2016 and supports the 10 Principles on human rights, labour standards, environment and anti-corruption. We promote the UNGC's Sustainable Development Goals and communicate annually on our progress implementing the 10 UNGC Principles. Our 2017 Communication on Progress submission can be found [here](https://www.unglobalcompact.org/system/attachments/cop_2018/462102/original/Lundin_Mining_2017_UN_Global_Compact_Communication_on_Progress_March_27_Final.pdf?1522176378).

[https://www.unglobalcompact.org/system/attachments/cop\\_2018/462102/original/Lundin\\_Mining\\_2017\\_UN\\_Global\\_Compact\\_Communication\\_on\\_Progress\\_March\\_27\\_Final.pdf?1522176378](https://www.unglobalcompact.org/system/attachments/cop_2018/462102/original/Lundin_Mining_2017_UN_Global_Compact_Communication_on_Progress_March_27_Final.pdf?1522176378)

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# MESSAGE FROM THE PRESIDENT AND CEO



Over the course of 2017, the global economy strengthened, base metal prices continued their rebound following several years of depressed markets, and these positive factors brought significant renewed interest from investors, host governments and communities back into our sector.

Improved operating cash flows from higher metal prices, a strong balance sheet and strengthening commodity demand enabled us to increase investments in all four of our operating mines, including an increase in local community investments. Due to our improved cash flows, we consequently paid significantly increased taxes and royalties to the benefit of the host governments in countries where we operate.

Global political events translated into a volatile year for mining. But they didn't lessen our commitment to

responsible mining. If anything, it was a year when we were able to further demonstrate our commitment to sustainability and reaffirm it as a key element in Lundin Mining's growth on a number of fronts.

Over the last several years, we have strived to annually improve our safety, environmental, social and operating performance, and to increase monitoring and disclosure of that performance. This year's *Sustainability Report* once again advances the level of reporting of key aspects related to the sustainability of our

business, supporting our mission to responsibly mine base metals vital to society and creating meaningful value for our stakeholders.

Lundin Mining's goal of strengthening its approach to sustainability continues to drive our progress. In 2017, we:

- implemented a refined risk management system;
- increased cross-operations awareness and reporting to support our commitment to the UN Global Compact and the Sustainable Development Goals;
- began implementing a comprehensive Responsible Mining Management System that will bring greater consistency in approach to responsible mining across all operations; and,
- increased our engagement with investors, analysts and other stakeholders on our environmental, social and governance performance.

Once again, we achieved our best-ever safety performance, putting the company into the top third of Western world miners and maintaining a five-year trend of improving the safety of our workers.

Environmental performance is another achievement that we are particularly proud of. With water and waste management increasingly more important and complex for the mining business, we have reduced our use of water in all operations. In Portugal, for example, we built a new state-of-the-art water treatment plant at Neves-Corvo to improve that site's water management facilities. Meanwhile, Candelaria's new Los Diques tailings management facility neared construction completion and, at our Zinkgruvan Mine in Sweden, we commissioned an expansion of the existing tailings management facility. All of these water infrastructure projects were designed and implemented according to best-practice international standards.

As for environmental incidents reporting, we classify these on a scale of 1 to 5. Regrettably, in 2017, at Neves-Corvo, one Level 3 environmental incident occurred in the form of a small tailings spill from the

pipeline between the processing plant and the tailings facility. The site immediately contained the spill and promptly reclaimed the affected area of approximately 0.5 hectares. There was no water contamination, the pipeline was repaired and Neves-Corvo has implemented actions to reduce the potential for this type of incident in the future.

Related to air emissions, we had multiple dust control, greenhouse gas, energy conservation and green energy initiatives that are showing positive results, and we are advancing more stringent environment-related targets on an annual basis to give additional responsible-mining objectives for our mines to strive for.

A persistent trend affecting the mining industry is an increasingly complex permitting environment. We are pleased to report that we obtained all required permits during the course of last year, with particularly important new permits approved, as well as several required amendments and permit renewals, with wide community support, at each of our mines.

A commitment to continuous improvement guides all aspects of our business, including community relations, whereby we increased the depth and frequency of stakeholder involvement and communication at all of our sites. We have also improved our systems for reporting to communities on issues of concern to them, with clear plans for working together to address those concerns. We will continue to strengthen stakeholder relationships in ways that align our company's needs, values and aspirations with those of local communities.

Issues and achievements related to our workforce last year were multi-faceted. We successfully signed renewals of the union labour contracts at Candelaria in a very constructive process without work disruptions, and we progressed efforts to resolve labour movement issues at Neves-Corvo.

Further on the workforce front, we actively promoted greater gender diversity. We have multiple women-in-mining initiatives, internships and new-

graduate-hire programs, and increased collaboration with a number of leading colleges and universities in the areas where we work. For instance, we created a bursary program with Laurentian University that prioritizes support for female and Indigenous students and provides funding for student visits to our mines to enhance the practical aspects of their engineering studies.

Looking to the sustainability of our asset base and mine lives, our exploration investment was a new company record, and the majority of that was investment in drilling at our mines. Exploration results were positive, supporting improved longer mine lives, most notably in Chile at Candelaria, which contributes to longer-term prosperity for our employees and the surrounding communities.

In April 2017, we completed the sale of our minority interest in the Tenke Fungurume Mine in the Democratic Republic of Congo for US\$1.14 billion, and we are actively looking for ways to reinvest those funds in accretive expansion of our asset base. We also bought down some of our debt to increase the strength of our balance sheet and reduce interest costs.

Looking ahead, and supported by our financial strength, we will seek continued growth through internal expansion and by acquiring sites or operations that complement our existing portfolio. We expect this continuing growth will bring additional employment, local procurement and a wider variety of opportunities for our stakeholders, in line with our ongoing commitment to sustainability.

I believe you will find this Lundin Mining – 2017 *Sustainability Report* a comprehensive, fulsome disclosure of our past performance, commitments and aspirations for the future, and we look forward to advancing our reputation as a responsible, highly successful miner in the years ahead.

**Paul Conibear,**  
President and CEO

# ABOUT THIS REPORT

Lundin Mining Corporation (“Lundin Mining” or the “Company”) has been producing an annual *Sustainability Report* since 2011. Our report provides information on the economic, safety, environmental and social issues that are of greatest interest to communities near our operations, our employees, our investors and other stakeholders.



<p><b>SUSTAINABILITY REPORTING FRAMEWORK AND CYCLE</b></p>	 <p><b>REPORTING PERIOD</b> January 1, 2017 – December 31, 2017</p>
 <p><b>DATE OF LAST REPORT</b> December 31, 2016</p>	 <p><b>REPORTING CYCLE</b> Annual</p>
 <p><b>REPORTING FRAMEWORK</b> 2017 will be our first report using the new Global Reporting Initiative Standards (plus the Mining &amp; Metals Sector Supplement)</p>	 <p><b>IN ACCORDANCE OPTION</b> This report has been prepared in accordance with the GRI Standards: Core option</p>

## REPORT SCOPE AND DATA

Our 2017 *Sustainability Report* covers operating mines that are majority-owned and managed by Lundin Mining through its subsidiaries and includes the following sites:

- Candelaria Complex (Chile)
- Eagle Mine (USA)
- Neves-Corvo Mine (Portugal)
- Zinkgruvan Mine (Sweden)

This report also includes summary-level information with respect to mine closure-related activities for Storliden (Sweden), a closed site. The Company is also working with local authorities and local communities to define environmental conditions and future reclamation options for a historical third-party-owned-and-operated processing and tailings site at Åmmeberg, Sweden.

In addition to the operations within Lundin Mining’s control in 2017, the Company held a 24% (non-operating) equity interest in the Tenke Fungurume (Tenke) copper and cobalt mine in the Democratic Republic of Congo, or DRC, for part of the year. As a result of the 2016 announcement of the planned divestment of Lundin Mining’s minority non-operational-interest-holder position in Tenke, these assets were considered discontinued operations for the purposes of this report. Lundin Mining completed the sale of its non-operational interest in Tenke on April 19, 2017. In addition, the Company also divested its interest in the former Galmoy Mine, a closed site located in Kilkenny, Ireland, on March 22, 2017.

Lundin Mining holds a 24% (non-operating) equity interest in the Freeport Cobalt Oy business, including the cobalt refinery in Kokkola, Finland. The business is operated by Freeport McMoRan Inc.

Certain labour practice indicators and performance data regarding employees, health and safety and training are also included for our corporate office in Toronto, Canada, as well as for our exploration projects and sites.

\* More detailed information regarding our financial and operational results for the reporting period can be found in our *2017 Annual Information Form* and *2017 Audited Financial Statements*. Unless otherwise stated, all references to \$ means United States dollars, C\$ means Canadian dollars. “Lundin Mining” or “Company” refer to Lundin Mining Corporation and/or its subsidiaries.

# ABOUT THIS REPORT

## DEFINING OUR REPORT CONTENT

Our 2017 Sustainability Report focuses on topics that are most material – or of greatest interest – to our business and stakeholders. In 2017, we undertook a comprehensive update of our materiality approach that aligns with the new GRI Standards. We engaged a sustainability-focused management consulting firm to design a structured process identifying material sustainability topics based on their importance to stakeholders and the economic, environmental and societal impacts of Lundin Mining's activities.

This process involved extensive engagement with internal and external stakeholders, including community members, employees and contractors, government authorities, industry associations, thought leaders, non-governmental organizations, customers, investors and shareholders. The feedback and

insights they shared were validated through internal workshops with senior management and operational leaders representing all of Lundin Mining's business units, leading to the identification of our material topics for 2017.

This matrix shows the results of our materiality assessment, mapping the material topics that were identified through the process described in the previous paragraph. The topics that are above the diagonal line are of greatest priority to both stakeholders and Lundin Mining. In accordance with leading disclosure practice, it is these priority material topics that shape the content of Lundin Mining's 2017 Sustainability Report and some of the focus for the year ahead. In addition to these priority topics, four additional areas of focus for the Company are included in this report: Governance, Human Rights, Biodiversity and Land Management, and Product Responsibility and Stewardship.

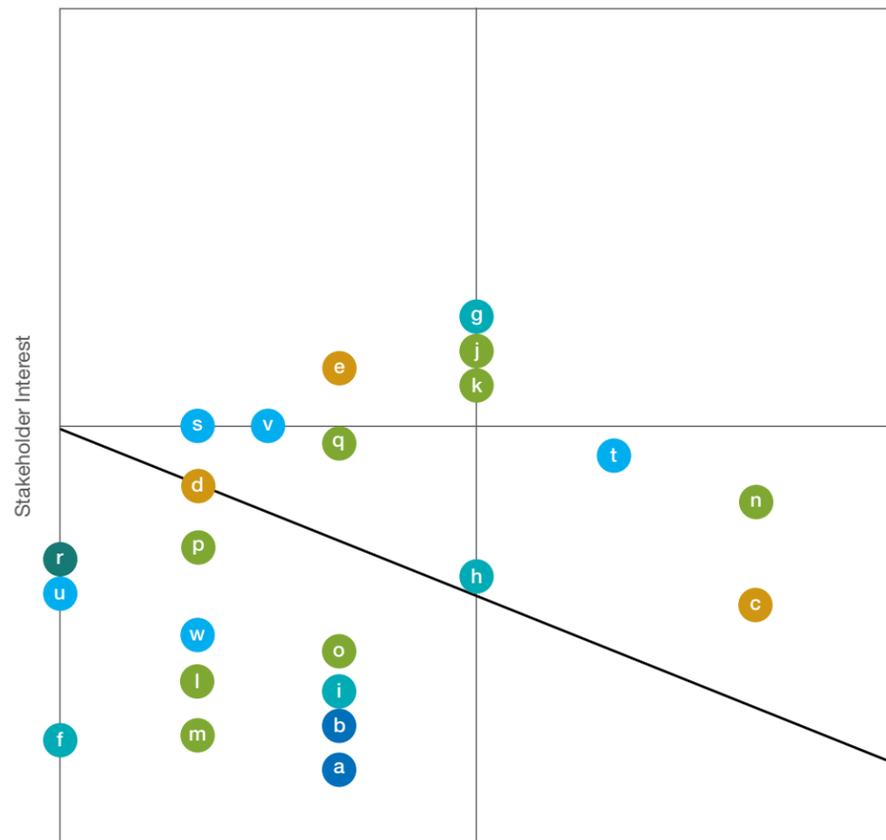
## INDEPENDENT ASSURANCE

In 2017, Lundin Mining selected Bureau Veritas to provide independent assurance of the Company's 2017 Sustainability Report. Bureau Veritas is a global professional services company, established in 1828 and operating in over 140 countries, specializing in the fields of Safety, Health, Environmental, Quality and Social Accountability obligations. The assurance process for the 2017 Sustainability Report was conducted to a moderate assurance level in accordance with AA1000AS–2008 as a Type 2 engagement. The assurance of the selected performance indicators included in Lundin Mining's 2017 Sustainability Report was assessed for reliability and accuracy of the data against the applicable indicators in the Global Reporting Initiative (GRI) Standards Sustainability Reporting Guidelines:

- Safety – Total Recordable Injury Frequency (TRIF) rate and Lost Time Injury Frequency (LTIF) rate
- Water – total amount of water withdrawn from all sources and total amount of water discharged
- Energy – total energy consumption within Lundin Mining operations, including electricity and liquid and gaseous fuel consumption
- GHG Emissions – Scope 1 and Scope 2 (location-based and market-based) emissions
- Stakeholder Engagement – as it relates to the AA1000AS principles of inclusivity, materiality and responsiveness
- Grievance Mechanism – grievances filed during the year, including number, description, action taken and outcome

Bureau Veritas' Independent Assurance Statement can be found on pages 114-117.

Materiality Matrix



Economic, Environmental, and Social Impacts on and from Lundin Mining

- GOVERNANCE**
  - a) Governance
  - b) Ethics and Anti-Corruption
- ECONOMIC**
  - c) Economic Performance
  - d) Transparency of Payments
  - e) Local Economic Impact
- OUR PEOPLE**
  - f) Diversity
  - g) Health and Safety
  - h) Labour Relations
  - i) Training and Professional Development
- ENVIRONMENT**
  - j) Water
  - k) Reclamation and Closure
  - l) Energy
  - m) Waste
  - n) Tailings and Waste Rock Management
  - o) Air Emissions and Other
  - p) Biodiversity and Land Management
  - q) Climate Change
- MATERIALS AND PRODUCT STEWARDSHIP**
  - r) Product Responsibility and Stewardship
- SOCIAL**
  - s) Stakeholder Engagement
  - t) Indigenous Relations
  - u) Human Rights
  - v) Community Development
  - w) Cultural Heritage



# ABOUT LUNDIN MINING

Lundin Mining is a diversified Canadian base-metals mining company with operations in Chile, Portugal, Sweden, and the United States of America, primarily producing copper, nickel and zinc. In addition, Lundin Mining holds an indirect 24% equity stake in the Freeport Cobalt Oy business, which includes a cobalt refinery located in Kokkola, Finland. The Company's headquarters are in Toronto, Canada, with exploration activities (including in-mine and near-mine targets) at Candelaria, Eagle, Zinkgruvan and Neves-Corvo. There are also greenfield exploration activities in South America and Eastern Europe. Staff from our former technical services office (Haywards Heath, UK) were relocated to the Toronto corporate head office during our office consolidation process in 2017.

Our organization operates with our Mission and Values at the core of our decisions.

## OUR MISSION:

We responsibly mine base metals vital to society, creating meaningful value for our stakeholders.

## OUR VALUES

### Safety

We hold health and safety as our top priority in everything we do

### Respect

We embrace diversity, inclusion, open dialogue and collaboration

### Integrity

We do what is right and honor our commitments

### Excellence

We set high standards and challenge ourselves to deliver superior performance

These values guide how we deliver on the following priority business objectives:

- Responsible and profitable development of mineral resources, including:
  - > Generating shared value and lasting benefits for host communities and other stakeholders
  - > Achieving a safe, productive and healthy work environment wherever we operate
  - > Engaging in open and inclusive dialogue with local communities and our stakeholders
  - > Being vigilant and collaborative in our protection of the environment
  - > Respecting Indigenous and human rights
  - > Maintaining high standards of ethics, corporate governance and honesty in all aspects of our business
- Generation of a steady pipeline of high-potential development opportunities while maximizing value from our existing operations and maintaining a strong corporate balance sheet
- Development of a high-performance culture across all operations, being an employer and partner of choice

We strive to meet or surpass applicable legal requirements wherever we work, and we seek to communicate on and continuously improve our performance.

Environmental All Operations Meeting, Neves-Corvo

## OUR APPROACH TO RESPONSIBLE MINING

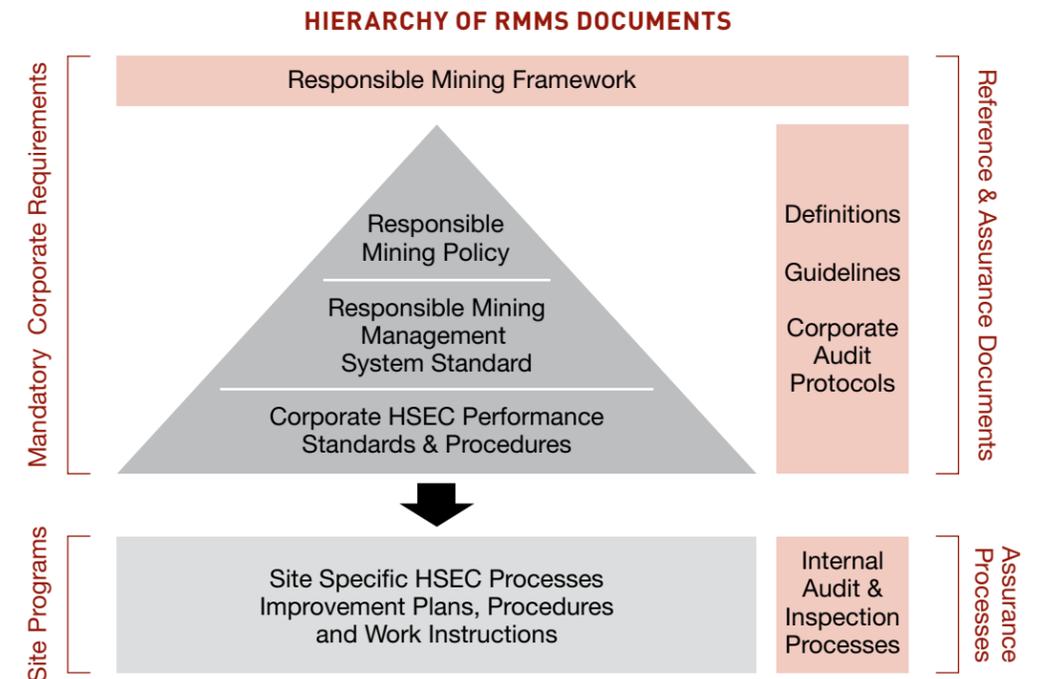
Our commitment to responsible mining is outlined in the following documents:

- Our **Responsible Mining Policy** outlines the Company's policy commitments and principles for responsible mining
- The Company's **Responsible Mining Framework** outlines our commitment to develop and implement management systems and operating practices that take into consideration applicable international guidelines, and defines the way we manage material economic, social, health and safety and environmental issues

- Our **Responsible Mining Management System (RMMS)** is a refinement to our existing integrated Health, Safety, Environment and Community (HSEC) Management System

For more details on our Responsible Mining Policy and Framework, please visit the Corporate Responsibility section of our website: <http://www.lundinmining.com>.

In 2017, we completed the development of our RMMS Standard. This standard replaces the former integrated set of HSEC Management System Standards, is an auditable specification outlining mandatory requirements for the management of the HSEC aspects of our business. The RMMS Standard directly supports the company-wide implementation of our Responsible Mining Policy.



# LUNDIN MINING AND THE U.N. SUSTAINABLE DEVELOPMENT GOALS

Lundin Mining joined the United Nations Global Compact in 2016 and submitted its most recent annual *Communication on Progress* on March 27, 2018. Our corporate values and guiding principles continue to align well with the Global Compact's Ten Principles on human rights, labour, the environment and anti-corruption, as well as the Sustainable Development Goals (SDGs) and we continue to advance our efforts to further integrate these into our business strategy, day-to-day operations and our organizational culture. We are working to support our operations in progressing the 17 United Nations SDGs by creating shared value, fostering partnerships and demonstrating environmental and economic performance.

Throughout this report you will see the SDG graphics aligned to key material issues and related activities that Lundin Mining is advancing.

WE SUPPORT



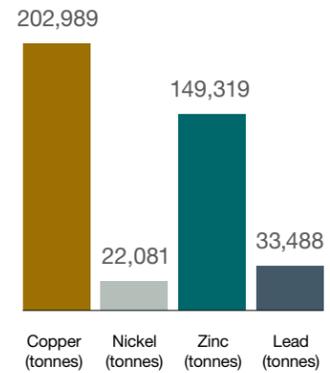
## SUSTAINABLE DEVELOPMENT GOALS



# 2017 Performance Highlights

**\$2.08 billion revenue generated**

## Metal Production Statistics (contained metal)



**3,535**  
Employees

**5,072**  
Contractors

**BEST-EVER TOTAL RECORDABLE INJURY FREQUENCY (TRIF) RATE OF 0.56 ACHIEVED**

**Best-ever Lost Time Injury Frequency (LTIF) Rate of 0.30 achieved**

**Lost Day Severity Rate (SR) was reduced by 30%, from 20 in 2016 to 14 in 2017**

**Zinkgruvan committed to a 100% renewable-energy electrical supply contract**

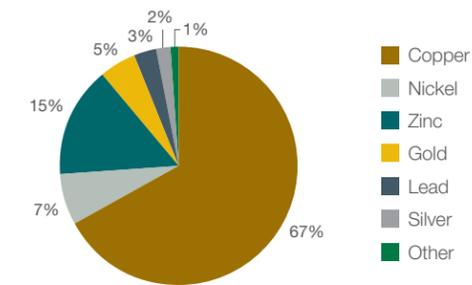
**Total direct community-investment expenditures across our operations in 2017 were approximately \$7.94 million**



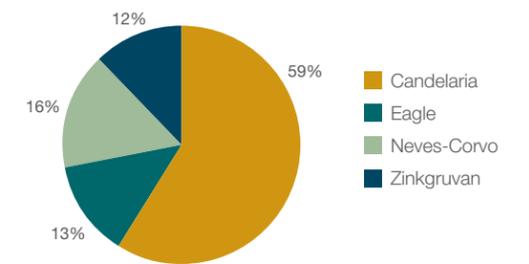
**\$688 million (or 92%) of our goods and services were procured locally (18%) or nationally (74%)**

**29 ENERGY/GHG EMISSION-SAVING INITIATIVES ASSESSED AND/OR IMPLEMENTED**

## Sales Breakdown by Metal



## Sales Breakdown by Mine



**Total water withdrawal reduced by over 16%**

**NEVES-CORVO FRESH-WATER WITHDRAWAL REDUCED BY ALMOST 80% SINCE 2014**

**On average, every cubic metre of water used by Lundin Mining is re-used**

**2.4 times**



# Our Operations



**Eagle, USA**  
NICKEL / COPPER

Interest **100%**

Number of employees **195**

Number of contractors **267**

Mine type: underground

Current mine life: 6 years to 2023



**Candelaria, Chile**  
COPPER / GOLD / SILVER

Interest **80%**

Number of employees **1,623**

Number of contractors **3,695**

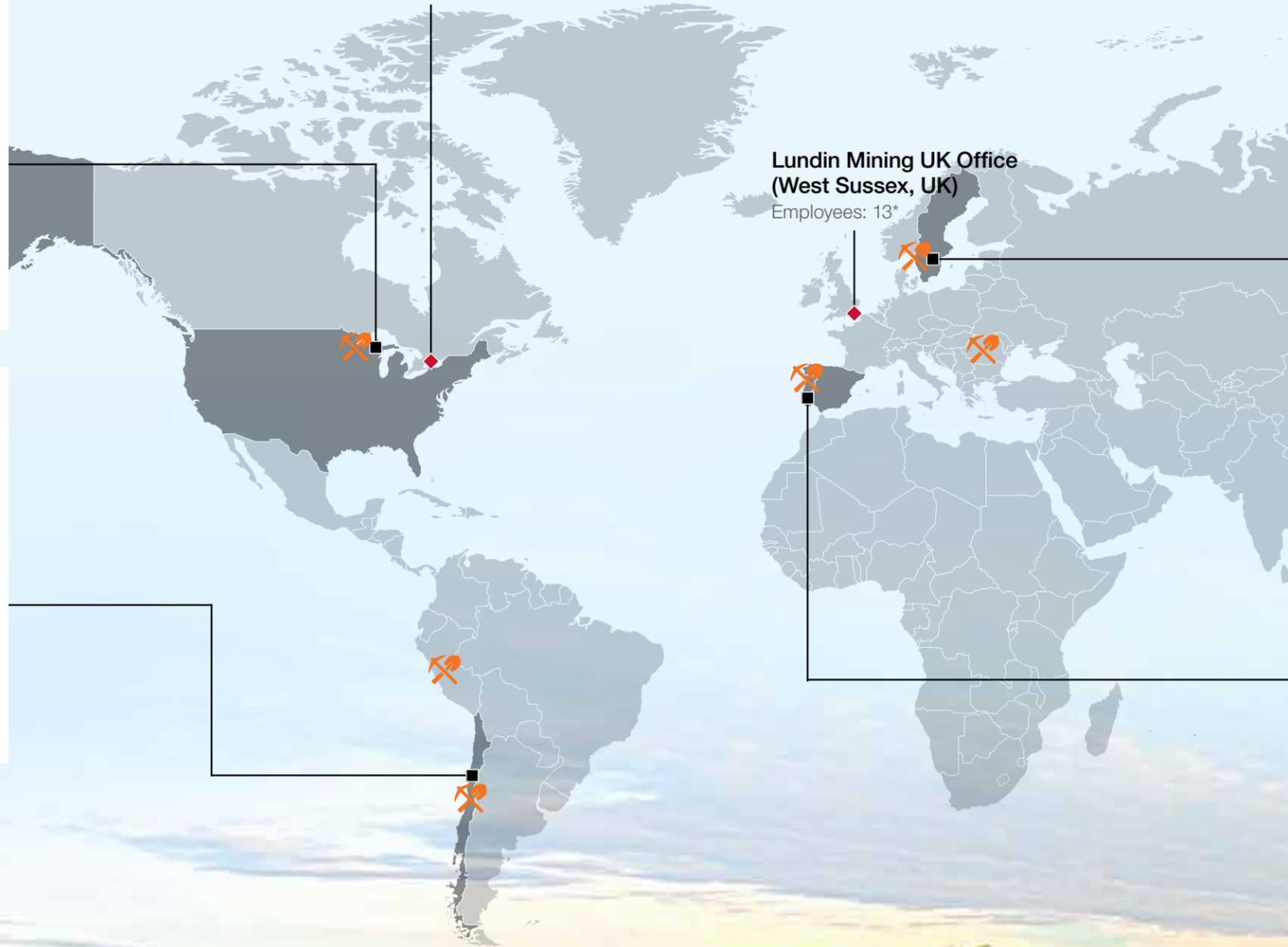
Mine type: open pit/underground

Current mine life: 18 years to 2035

- Operations
- ◆ Head Office
- ⚡ Exploration Activities
- Copper
- Zinc
- Nickel
- Lead
- Gold
- Silver

**Lundin Mining Head Office (Toronto, Canada)**  
Employees = 79  
Number of Contractors = 3

**Lundin Mining UK Office (West Sussex, UK)**  
Employees: 13\*



**Zinkgruvan, Sweden**  
ZINC / LEAD / COPPER

Interest **100%**

Number of employees **400**

Number of contractors **72**

Mine type: underground

Current mine life: 15 years to 2032



**Neves-Corvo, Portugal**  
COPPER / ZINC / LEAD

Interest **100%**

Number of employees **1,214**

Number of contractors **1,011**

Mine type: underground

Current mine life: 12 years to 2030 (extensions approved May 2017 to extend mine life to 2030 with Zinc Expansion Project (ZEP) investment)

## EXPLORATION ACTIVITIES

- Candelaria, Chile (copper / gold)
- Eagle, USA (nickel / copper)
- Neves-Corvo, Portugal (copper / zinc)
- Zinkgruvan, Sweden (zinc / copper)
- Peru (copper)
- Romania (copper / gold)
- Chile (copper / gold)
- Number of employees = 24 (non-operational staff)
- Number of contractors = 24

\* Staff relocations from the Haywards Heath office to the Toronto Corporate office were initiated in 2017.

# OUR OPERATIONS



Zinkgruvan Underground Operations

## CANDELARIA

The Candelaria Mining Complex; comprising Minera Candelaria and Minera Ojos del Salado, as well as the Punta Padrones Port facility near the community of Caldera; produces copper concentrates from open pit and underground mines located near Copiapó in the Atacama Region of Chile. Minera Candelaria consists of an open pit mine and an underground mine providing copper ore to an on-site concentrator with a nominal processing capacity of 75,000 tonnes per day (27.4 million tonnes per annum or mtpa). Minera Ojos del Salado comprises two underground mines, Santos and Alcaparrosa, and an on-site concentrator with a nominal throughput capacity of 3,800 tonnes per day (1.4 mtpa).

Construction of the new Los Diques tailings management facility was substantially completed in 2017, and tailings deposition from the Candelaria processing plant commenced in early 2018.

Aggressive exploration in the underground mines continued to be highly successful during 2017, and major capital initiatives were commenced; including upgrades to the open pit mine equipment fleet, a mill optimization program aimed at increasing reliability, throughput and copper recovery, and the start of development of a new southern section of the Candelaria underground mine. The current estimated mine life of the Candelaria Mining Complex extends to 2035.

## EAGLE

Eagle Mine is an underground, high-grade nickel and copper mine located in western Marquette County of Michigan's Upper Peninsula in the USA. Ore from the mine is transported by truck approximately 100 km to a processing plant with a capacity of 2,000 tonnes per day (730,000 tonnes per annum or tpa) located in Humboldt township.

In 2015, exploration drilling discovered the Eagle East high-grade nickel and copper deposit approximately 2 km east of the Eagle deposit. In 2017, a feasibility study was completed on Eagle East supporting a mineral reserve estimate and the decision to mine the deposit. Development of access declines to Eagle East were well advanced at the end of 2017, and first ore production is forecast for 2020. With Eagle East, the overall estimated mine life of Eagle is to 2023.

## NEVES-CORVO

Neves-Corvo is a copper, zinc and lead underground mine located approximately 100 km north of Faro, Portugal, in the western part of the Iberian Pyrite Belt. The mine has been a significant producer of copper since 1989 and in 2006 commenced treating zinc ores. The facilities include a shaft with a total hoisting capacity of 4.7 mtpa, a copper plant with 2.5 mtpa processing capacity and a zinc plant with 1.2 mtpa processing capacity. The zinc plant has the flexibility to process zinc or copper ores.

In May 2017, the Zinc Expansion Project (ZEP) was approved, which at completion will see zinc ore mining and processing capacity increase to 2.5 mtpa. Development of the project has commenced and it is expected to double zinc production by 2020 through the investment of approximately €260 million (\$293.8 million). The current copper and zinc mineral reserve estimates at Neves-Corvo will support an estimated life of mine of over thirteen years, to 2030.

## ZINKGRUVAN

The Zinkgruvan Mine, located 200 km southwest of Stockholm, has been known since the 16th century and has been producing zinc, lead and silver on a continuous basis, under different owners, for over 160 years. The operation consists of an underground mine, processing facilities and associated infrastructure, with a nominal ore production capacity of 1.35 mtpa.

During 2017, the Company completed construction of the Enemossen East expansion to the existing tailings management facility. In addition, an expansion of the processing plant was completed, increasing the processing capacity to 1.35 mtpa. The current mineral reserve estimates at Zinkgruvan support a forecast mine life to 2032.

## EXPLORATION AND NEW BUSINESS DEVELOPMENT GROUP

The strategy of the Exploration and New Business Development Group is to support production growth, economic viability and sustainability of Lundin Mining by:

- Further developing and expanding mineral resource and mineral reserve potential at existing operations, with the goal of extending mine life
- Greenfield exploration seeking new business / discovery potential

The total exploration expense for 2017 was \$72 million, an increase of approximately \$26 million from 2016. The majority of planned and executed exploration activity for 2017 was directed toward near-mine targets at Candelaria and Eagle East. For more information, we invite you to visit our Exploration section of our website: <http://www.lundinmining.com>.

## OUR CUSTOMERS AND MARKETS

Lundin Mining's principal products and sources of sales are mineral concentrates of copper, nickel and zinc. Concentrates are transported by covered truck or rail, in bulk, to outbound ports for shipping, or are transported directly to smelter facilities for further processing.

Concentrates are mainly sold under multi-year sales contracts to a variety of smelter customers in Europe, Asia and the Americas. The end users of our products are global.

## OUR SUPPLY CHAIN

Lundin Mining relies on an international network of suppliers for the provision of products and services required to support business activities at our mines. The largest categories of suppliers across our operations in 2017 included, in alphabetical order: cement, chemicals, construction, electrical, energy, engineering, equipment and parts, exploration drilling, explosives, fuel, maintenance, mechanical, mining contractors and transportation. In recognition of the increasing importance of supply chain practices, Lundin Mining initiated a benchmarking review of supply chain management systems in place in 2017, with projected completion of this program in 2018.

## MEMBERSHIPS AND ASSOCIATIONS

Involvement with memberships and industry associations enables Lundin Mining to keep current regarding matters of public policy, emerging-sector and sustainability trends, regulatory updates and the sharing of industry best practices. In 2017, Lundin Mining was a member or participant in the following industry associations:

### Corporate

- [Mining Association of Canada](#)
- [European Association of Mining Industries, Metal Ores & Industrial Metals](#) (Euromines)
- [European Copper Institute](#)
- [International Maritime Organization Working Group](#)
- [International Zinc Association](#)
- [International Lead Association](#)
- [Prospectors and Developers Association of Canada](#)
- [United Nations Global Compact](#)

## Eagle

- [Michigan Manufacturers Association](#)
- [Michigan Chamber of Commerce](#)
- [American Exploration and Mining Association](#)
- [Lake Superior Community Partnership](#)
- [InvestUP](#)

## Candelaria

- [Chilean Mining Council \(Consejo Minero\)](#)
- [National Mining Society \(SONAMI\)](#)
- [Atacama Regional Development Corporation \(CORPROA\)](#)
- [Instituto de Ingenieros de Minas de Chile \(IIMCh\)](#)
- [Red Ambiental Atacama](#)
- [Comité Regional de Seguridad Minera Atacama \(CORESEMIN\)](#)
- [LICEO Jorge Alessandri Rodriguez High School \(Members of advice committee\)](#)

## Neves-Corvo

- [National Association of Extractive and Transforming Industry \(ANIET\)](#)
- [Setúbal Port Community](#)
- [Portuguese Shippers Council, member of the European Shipper's Council](#)

## Zinkgruvan

- [Swedish Association of Mines, Mineral and Metal Producers \(SveMin\)](#)

# OUR PERFORMANCE AGAINST 2017 TARGETS

Our annual sustainability targets are aligned with our Responsible Mining Policy and help us achieve continuous performance improvement in key sustainability areas. In establishing our targets, we consider the results of internal risk assessments, stakeholder feedback and monitoring and continuous improvement of existing processes and procedures.

## 2017 Target Result Highlights

### GOVERNANCE

Communicate / roll out the 2016 Risk Management Statement and Framework, including review of the current processes for identification and assessment of key risks		In Q2 2017, an updated Risk Management Statement and Framework were introduced to executives and senior site management. The Executive Risk Committee recommended that the documents then be introduced to sites during planned Operational Risk Management Workshops. A workshop was delivered at one operating site, Candelaria, during December 2017
Continue to identify opportunities to implement the 10 principles contained within the UN Global Compact and align Lundin Mining's sustainable development activities with relevant UN SDGs		In 2017, Lundin Mining worked with all operations to raise awareness of the UNGC SDGs, as demonstrated by the results of our <a href="#">UNGC Communication on Progress (COP)</a> . The COP was contributed to by all operations and contains examples of various projects undertaken by each site to demonstrate the implementation of various SDGs. This report was reviewed and signed by the CEO. Efforts to reinforce the effective implementation of the SDGs will continue in 2018
Progress the roll-out of the Responsible Mining Management System (RMMS) and communication plan to all sites		The RMMS was completed in 2017 and distributed to all personnel. Introductory/gap assessment workshops were conducted by the HSEC corporate team with representatives at each operation in Q3-Q4 2017 and planning for 2018 check-up workshops was undertaken

### ECONOMIC

Improve efficiencies while preserving margins and cash flows at all operations		Operating margins were improved year over year at each of the operations. Cash flow from operations increased significantly during 2017
Improve return on capital invested, manage a healthy balance sheet for the next stage of growth		The Company continued to maintain a strong balance sheet. The Company had a net cash position of \$1.1 billion at December 31, 2017
Advance growth opportunities at existing operations and/or new sites		Eagle and Neves-Corvo are both pursuing significant expansion projects with a total expected investment of approximately \$400 million  Through exploration programs, the Company expanded its mineral resources and reserves

### OUR PEOPLE

Appoint, develop and retain talent to support our current business and future growth		Highly qualified employees were retained for key vacancies within the organization in a timely manner  Our 2017 turnover rate decreased by over two-thirds, to 5.4% in 2017  Succession and development plans were partially updated and plans are in place to ensure greater progress of these initiatives in 2018
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## 2017 Target Result Highlights

### HEALTH AND SAFETY

Ensure zero fatalities		There were no fatal injuries
Achieve a Total Recordable Injury Frequency (TRIF) rate of 0.8		Lundin Mining achieved a TRIF of 0.56 – a “best-ever” for the Company

### ENVIRONMENT

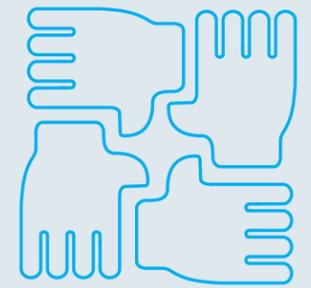
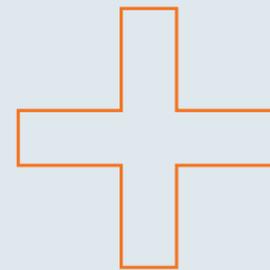
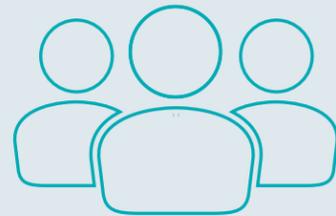
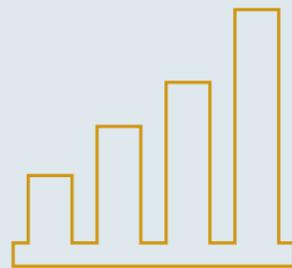
Develop and implement strategic plans for the top five environmental risks for each of Lundin Mining's operations		In 2017, each site identified its top 5 environmental risks and created plans to address them. Each month, all Lundin Mining operations report on progress to address the outstanding top 5 environmental risks
Advance the development of targets for improved energy efficiency and GHG emissions reductions		In 2017, Lundin Mining developed a GHG emissions intensity target to reduce Scope 1 and Scope 2 (market-based) emissions
Complete integrated HSEC audits at all sites		In coordination with the successful 2017 roll out of the new Lundin Mining integrated HSEC management system standard, RMMS, the Company conducted a review of 2016 integrated HSEC audit actions to assess progress and resolution. In addition, detailed reviews of mine plans for all operations were completed in 2017

### SOCIAL

Undertake social performance audits to evaluate each operation's risks, needs and gaps in proactively managing stakeholder engagement, community investment and social impact management. Undertake a review of social performance tools developed to date and evaluate their efficacy and relevance for implementing the RMMS and proactively managing social risks		Redrafted all the stakeholder engagement, community investment and social impact management standards. Revised versions are based on international best practice and focused on identifying and proactively managing social risks, supporting operational priorities and integrating with <a href="#">Lundin Foundation</a> activities  All operations drafted 5-year social performance strategic plans in 2017. Process included audits of risks, systems, practices, resources, priorities and outcomes to date. 5-year strategic plans represent a consistent approach across Lundin Mining operations to social risk management, sustainable social investments, local content, grievance management and proactive stakeholder engagement. These draft 5-year strategic plans will be completed and implemented in 2018
Develop a community investment handbook		The draft 5-year strategic plans include a comprehensive strategic community investment section that is based on socioeconomic context of each operation, with the shared goal of being a catalyst for sustainable development in the regions where we operate. The community investment sections of strategic plans identify and prioritize investments that will yield meaningful community development outcomes and minimize transactional contributions with limited outcomes for host communities
Ensure all Lundin Mining sites and operations have community investment policies and plans		All operations have community investment plans in place as part of their draft 5-year strategic plans  Neves-Corvo has developed a stand-alone community investment policy. The other sites will decide in 2018 if they will develop their own policies or will continue to be guided by the corporate community investment policies

Achieved
 Partially Achieved
 Not Achieved

# 2018 SUSTAINABILITY GOALS



## GOVERNANCE

Executive Risk Committee to approve updated risk likelihood and impact definitions aligned with finalized Risk Tolerance definitions

Enhance quarterly risk monitoring and reporting by operations

Ensure key projects / initiatives benefit from a broad-based risk assessment

Broaden the current Diversity Policy to encompass diversity and inclusion

Anti-corruption compliance training for senior corporate and site management

## ECONOMIC

Continue to promote local procurement at all sites

Enable the growth of economic diversification at all sites

Advance growth opportunities at existing operations and/or new sites

Create a new economic diversification and local procurement program in partnership with the [Lundin Foundation](#) for at least one operation

Provide a training program to build capacity of local entrepreneurs for at least one operation

## OUR PEOPLE

Continue to build a culture of trust and mutual respect

Ensure our working environments position Lundin Mining as an "Employer of Choice," with motivated employees at all levels of the organization

Further improvements to progress with diversity, as well as to the number of women retained for new positions, inclusive of Senior Management roles

## HEALTH AND SAFETY

Ensure zero fatalities

Achieve a Total Recordable Injury rate of 0.70 or better

Develop Occupational Health Exposure Profiles for each operation

## ENVIRONMENT

Achieve RMMS conformance in stages by Q1 2019

Continue to demonstrate measurable progress on key water- and closure-related initiatives

Ensure operating environmental performance improvement through the enhancement of communications, site visits, audits and facility inspections

Progress efforts to reduce Scope 1 and Scope 2 (market-based) intensity emissions by 1% between 2015 and 2018

## SOCIAL

Monitor and communicate outcomes from implementation of 5-year social performance strategic plans

Finalize and provide training on standards for stakeholder engagement, community investment and social impact management

Develop standards and guidance notes for Indigenous Peoples' engagement, local content, social closure and grievance management

Develop a gender diversity strategy and plan for at least one operation, including community investments to promote science and technology education of women and advancement of economic empowerment of women

Establish a community agreement for sustainable investments for at least one operation



# Governance

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## OUR APPROACH



Lundin Mining is committed to maintaining high standards of ethics, corporate governance, honesty and accountability in all aspects of our business. We do this by enacting robust corporate governance processes and ensuring our employees understand and consistently meet the Company's Guiding Principles and Responsible Mining Policy and Framework.

## Board of Directors

The Board of Directors (the Board) is primarily responsible for the oversight of management, as well as Lundin Mining's strategy and business affairs. The Board's chair, together with the lead director, are responsible for ensuring appropriate governance mechanisms are in place to monitor Lundin Mining's development through regular contact with the President and Chief Executive Officer (CEO) and to ensure the Board regularly receives reports concerning the development of Lundin Mining's business and operations. This includes progress and continuous improvement efforts with respect to its economic, environmental, safety and social performance.





Global HSE Meeting at Neves-Corvo

The Board has eight members (seven male members and one female member), five of whom are independent, non-executive directors. The Board members are required to own common shares in the Company to align their interests with those of shareholders.

The Board also has four standing committees including the (1) Audit Committee, (2) Human Resources / Compensation Committee, (3) Corporate Governance and Nominating Committee and (4) Health, Safety, Environment and Community Committee (HSEC). Committee mandates are reviewed and updated regularly to maintain continued relevancy and to provide an effective framework for a high standard of governance.

In December 2016, directors of the Company elected to form an Ad Hoc Risk Committee of the Board. Members of this newly developed Ad Hoc Risk

Committee include the Chair of each Board Committee. The Ad Hoc Risk Committee is scheduled to meet periodically to discuss key risks to the business and management's efforts to address these risks. Also in December 2016, an Executive Risk Committee (ERC) was established. The ERC members include the Company's CEO, Chief Financial Officer (CFO), Chief Operating Officer (COO), Chief Legal Officer, Vice President (VP) – Environment and VP – Technical Services. The ERC meets at least quarterly to review the Company's risk profile and efforts to treat key risks and take advantage of new opportunities, among other things.

The HSEC Committee assists the Board in its oversight of health, safety, environmental and social issues. The HSEC Committee comprises three members and meets at least four times per year. Informed by quarterly reports from key departments, the committee

is responsible for reviewing the effectiveness of Company policies in these areas and the Responsible Mining Management System (RMMS); ensuring compliance with applicable legal and regulatory requirements; and reviewing performance, leadership and external reporting associated with these matters.

The HSEC Committee formally reviews and approves Lundin Mining's *Sustainability Report*, confirming that all identified material aspects receive coverage in the report. Senior management has reviewed and ensured the accuracy of the data and information contained in this report, including the CEO, COO, CFO, VP – Environment, Director of Health & Safety, Director of Sustainability and Regulatory Affairs and Director of Sustainability and Social Performance.

## Business Ethics

The Company and its subsidiaries and their respective directors, officers, employees, consultants and contractors (each a Company Representative), are expected to conduct business activities ethically and transparently, in accordance with our Code of Conduct, Ethical Values and Anti-Corruption Policy (the Code). The Code is reviewed regularly by senior management and the Board and is available on the Corporate Governance section of our website: [www.lundinmining.com](http://www.lundinmining.com). In addition to our Code, our Values Statement – what we believe in and how we operate – is embedded in our Responsible Mining Framework. These documents shape and inform Lundin Mining's approach to doing business.

To ensure an understanding of required compliance with the Code and the high behavioural standards we expect, we have translated the Code into the working languages at our operational sites and made it readily accessible in key locations at each operational site and on our internal website. Measures are in place to support employee reviews of the Code during the on-hire induction process and again on an annual basis. We also distribute our Code to contractors, suppliers, customers and service providers to ensure they understand Lundin Mining's expectations and conduct their activities in accordance with these standards.

The Code articulates definitions and expectations related to the avoidance of situations that may constitute a conflict of interest. Company representatives are expected to avoid all situations where personal interests or activities interfere or appear to conflict with the best interests of the Company, or adversely influence the proper discharge of his/her obligations, duties and responsibilities to the Company and its shareholders.

## Anti-Corruption and Anti-Bribery

In 2017, there were no known incidents of corruption. Lundin Mining supports UNGC Principle Ten: Anti-Corruption and has a zero-tolerance policy for bribery and corruption by employees, officers, directors, consultants and contractors of the Company, with even the appearance of impropriety deemed unacceptable. We conduct internal audits of all of our business units and have robust internal financial controls and processes in place for monitoring and oversight with respect to the financial aspects of operations.

## Human Rights

The Company is committed to respecting human rights as set forth in the United Nations Guiding Principles on Business and Human Rights.

Lundin Mining supports UNGC Principles One and Two: Human Rights and respects human rights as set forth in the United Nations Universal Declaration of Human Rights. We treat our employees, contractors, neighbours, local communities and host governments with dignity and respect. This commitment, while already in our Responsible Mining Policy and Framework, was embedded into the Code in early 2016.

Lundin Mining does not tolerate any form of discrimination or harassment and we foster a work environment free from discrimination against gender, age, race, national origin, marital status, sexual orientation, religious beliefs, disability, or any other personal characteristics protected by applicable law. We respect and take into consideration the rights, interests and concerns of traditional land uses and cultural activities of Indigenous peoples within our sphere of influence. No human rights-related grievances were filed in 2017. There were no recorded incidents of proven discrimination at our operations during the reporting period. A claim of discrimination during a corporate office hiring process was received in 2016 and resolved in 2017.



In 2016, Lundin Mining adopted a Diversity Policy approved by its Board of Directors. The Diversity Policy provides a framework for the Company to achieve its objectives of (1) a diverse and skilled workforce; (2) a workforce that best represents the talent available where the Corporation's assets and employees are located; (3) a work environment that values and utilizes the contributions of employees with diverse backgrounds, experiences and perspectives; (4) a workplace culture characterized by inclusive practices and behaviours; (5) an environment that encourages the development of necessary skills and experience for leadership roles; (6) improved employment and career development opportunities for women; (7) awareness in all staff of their rights and responsibilities with regards to fairness, equity and respect for all aspects of diversity; and (8) workplaces that are free from all forms of discrimination and harassment. Within this framework, the Corporate Governance and Nominating Committee is responsible for making recommendations to the Board on the election or re-election of Board nominees and considers a range of factors, including performance, skills and diversity, including identification and nomination of female candidates, when identifying and selecting candidates for election or re-election. Management regularly reviews the policy to assess effectiveness and corresponding revisions as may be appropriate. For more detail on Our Diversity Policy please visit on the Corporate Governance section of our website: [www.lundinmining.com](http://www.lundinmining.com).

Lundin Mining supports UNGC Principles Three, Four, Five and Six: Labour. The Company supports freedom of association and collective bargaining, as described in the Code and there are no operations where the right to exercise these labour rights may be violated or at risk. No operations are at risk for incidents of child labour or young workers exposed to hazardous or industrial conditions. Lundin Mining has strict proof-of-age requirements for its workforce upon hiring, at all sites, preventing anyone under the legal industrial working age from obtaining employment at any of our sites or operations. Similarly, our operations are not at risk for incidents of forced or compulsory labour. There were no reported or known incidents of forced or child labour practices at our operations in 2017.

## Whistleblower Policy

The Lundin Mining Whistleblower Policy establishes a Company-wide protocol and line of communication for the confidential and, if desired, anonymous reporting (without fear of reprisal or retaliation) and investigation of any fraudulent, unethical, or illegal financial activity, or any behaviour which violates the Code. For more information on our Whistleblower Policy, please visit the Corporate Governance section of our website: [www.lundinmining.com](http://www.lundinmining.com).

Lundin Mining's Policy clarifies the lines of communication and provides a choice for reporting to either the Chair of the Audit Committee or the Chair of the Corporate Governance and Nominating Committee (CGNC). The Audit Committee Chair is the designated recipient for reports of any known or suspected financial statement disclosure, accounting, internal controls or auditing irregularities and the resolution of issues identified by the Corporation's external auditors and the CGNC Chair is the designated recipient of reports of any other known or suspected violations of the Code. The Company's Whistleblower Policy was recently updated and the revised policy is being communicated to relevant parties across the Company, including its operating subsidiaries and mine sites, through information sessions, supported by posters and wallet cards in all host-country languages.

## Risk Assessment and Management

We have a systematic approach to identify, analyze, evaluate and manage material business risks. Our approach is based on the ISO 31000 Risk Management standard and a "plan-do-check-act" model that considers a broad spectrum of stakeholders as well as risk exposures, both internal and external, to the organization. The approach is also intended to identify and prudently leverage opportunities that may be identified through the risk assessment process. We conduct risk assessments to evaluate health, safety, environmental and social risks and opportunities, among others, both at the site and at corporate levels. We rank identified risks based on the likelihood of risk event occurrence and the nature and degree of event impact on business strategies and objectives. Significant or "key" risk exposures are those that are assessed as having the potential to result in a major or catastrophic net impact on the organization and its stakeholders. Our risk assessment process is iterative, based on both quantitative and qualitative data and incorporated into our business activities.

We summarize enterprise and operational risk exposures in risk registers that are reviewed quarterly and we track implementation of risk treatment action plans. We monitor and internally report on identified key risks and action plans on a quarterly basis to the ERC and the Audit Committee of the Board. Reports presenting a consolidated portfolio view of enterprise and operational risks and progress on risk management activities are submitted to the ERC, quarterly, for review and discussion. Periodically, the Ad Hoc Risk Committee of the Board also meets to discuss the risk profile of the organization and changes thereto.

At an enterprise level, we focused on proactively managing our most significant risks. These risks included securing environmental and other permits critical to our operations; maintaining our social license and community support; addressing the evolving regulatory landscape; monitoring commodity price and currency exchange volatility; eliminating or controlling the environmental risks associated with mining activities such as dust generation, water consumption and groundwater contamination; ensuring tailing storage facility integrity; and eliminating, minimizing and controlling key operational and safety risks such as the potential for underground mine fires or falls of ground.

A listing of specific community concerns raised in 2017, and the Company's response to these issues, is presented in our Social Performance section.



Candelaria Crisis Management Training



## EXTERNAL COMMITMENTS

Lundin Mining's Responsible Mining Policy and Framework are aligned with the Government of Canada's Enhanced

Corporate Social Responsibility Strategy. Under Lundin Mining's Responsible Mining Framework, the Company commits to develop and implement management systems and operating practices that take into consideration applicable international guidelines, including the following:

- Organization for Economic Cooperation and Development Guidelines for Multi-National Enterprises\*
- United Nations Guiding Principles on Business and Human Rights\*
- United Nations Global Compact (joined in March 2016)\*
- Voluntary Principles on Security and Human Rights\*
- International Finance Corporation Performance Standards on Social and Environmental Sustainability\*
- Global Reporting Initiative\*
- Prospectors and Developers Association of Canada e3 Plus\* (Lundin Mining commits to align its exploration practices with this initiative)

\* Voluntary initiatives



# Health and Safety

## IN THIS SECTION

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Crisis Management Planning and Emergency Preparedness	35

## OUR APPROACH



Lundin Mining is committed to providing our workforce with a safe and healthy workplace. The health and safety of our employees and contractors is first and foremost in all that we do. We also recognize that our efforts to continually

improve health and safety performance directly affects both internal and external stakeholders, including the communities that we operate in and our suppliers. We strive to share our safety and health practices as well as lessons learned with all who are interested.

Our approach to health and safety is simple. We believe that all occupational injuries and work-related illnesses are preventable. Our aim is 'Zero Harm'. We've translated this into an operational objective of sending everyone home safe – every shift – every day. This objective applies to our employees and contractors, to our suppliers and our visitors.





## RELATED MATERIAL TOPIC: HEALTH AND SAFETY

### What is in this topic:

Workplace health and safety and emergency and crisis preparedness at Lundin Mining

### Topic boundary:

Impacts are both internal and external, across all operations and of greatest interest to employees and contractors, customers, suppliers, regulators and industry associations

### Disclosures for this topic:

403-1, 403-2, 403-3, 403-4



High Angle Rescue Training at Eagle

## 2017 SAFETY PERFORMANCE

2017 was another best-ever safety year for Lundin Mining. We experienced 48 total recordable injuries in 2017 and achieved year-end Total Recordable Injury Frequency (TRIF) and Lost Time Injury Frequency (LTIF) rates of 0.56 and 0.30 respectively. Our 2017 TRIF rate of 0.56 significantly bettered our improvement target of 0.8. While our count of total recordable injuries increased by two compared to 2016, this was more than offset by a 19% increase in hours worked. The significant increase in hours worked is attributed to several major project activities across the Company.

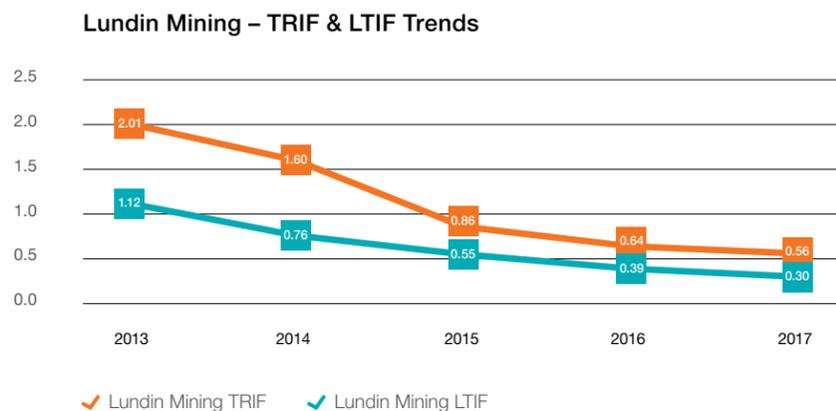
In addition to best-ever TRIF and LTIF rates, the count of lost time injuries decreased from 28 in 2016 to 26 in 2017, while lost time days were reduced from 1,473 in 2016 to 1,223 in 2017. Correspondingly, the lost time injury Severity Rate (SR) dropped from 20 in 2016 to 14 in 2017.

Following a proactive mid-year “summer safety” campaign, we also achieved our best-ever mid-year safety performance. Ten recordable injuries were reported between May and August. This compares to a five-year average of 22 for the same period.

Also noteworthy for 2017, both the Eagle Mine and our Corporate Exploration team worked the year without a lost time injury, while Zinkgruvan Mine achieved its best-ever operational TRIF and LTIF rates.

Safety Performance Comparison <sup>1</sup>	2017	2016	2015
Total Recordable Injury Frequency rate (TRIF) <sup>2</sup>	0.56	0.64	0.86
Lost Time Injury Frequency rate (LTIF) <sup>3</sup>	0.30	0.39	0.55
Lost Workdays	1,223	1,473	2,169
Lost Time Severity Rate (SR) <sup>4</sup>	14	20	28
Fatalities	0	0	1

- Our safety performance includes both employees and contractors.
- Total Recordable Injury Frequency rate (TRIF) is calculated as (total number of recordable injuries [including fatalities, lost time injuries, restricted work and medical treatment injuries] x 200,000 hours) / total hours worked.
- Lost Time Injury Frequency rate (LTIF) is calculated as (total lost time injuries x 200,000 hours) / total hours worked.
- Lost Time Severity Rate (SR) is calculated as (total lost workdays x 200,000 hours) / total hours worked.



## Developing an Interdependent Safety Culture

In 2014, with guidance and support from DuPont Sustainable Safety Solutions (DSS), we embarked on a journey to establish an Interdependent Safety Culture across Lundin Mining.

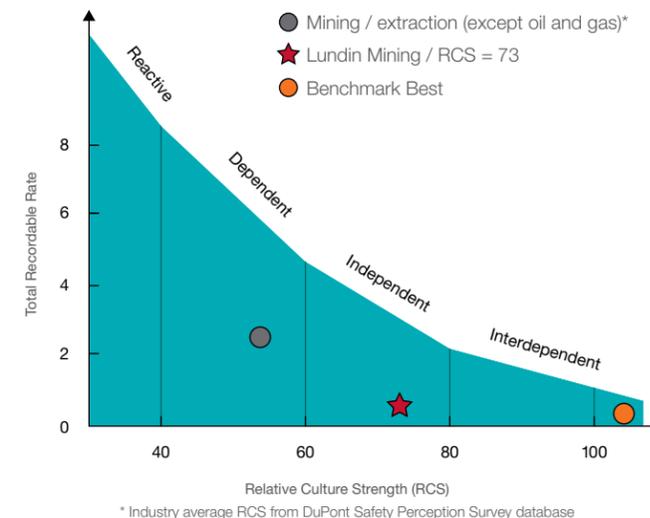
To assess our progress, working with DSS, we conducted a company-wide safety perception survey in December 2017. The purpose of the survey was to establish a baseline measure of our safety culture against DuPont’s Bradley Curve and to identify areas for additional safety improvement efforts. More than 6,800 surveys were completed and submitted by employees and contractors, providing an 82% response rate. A relative safety culture strength (RCS) score was established and plotted on the Bradley Curve and compared to a benchmark best score and to an industry segment average score. The results show positive progress with safety culture perceptions well advanced into the Independent sector of the Bradley Curve.

Strong leadership skills, employee involvement and a personal commitment to safety are critical to achieving an Interdependent Safety Culture. During 2017, we continued to provide Visible Felt Leadership training across the Company. Establishing and embedding the key traits of Visible Felt Leadership are essential for building sustainable and productive relationships between management, employees, contractors, local communities, customers and our shareholders. Additional details on Visible Felt Leadership can be found in our 2016 Sustainability Report.



Candelaria Underground Mine

## Lundin Mining Safety Culture Survey Bradley Curve plot



**6,800** safety culture surveys submitted

**82%** response rate against a target of 50%

An Interdependent Safety Culture is one where safety is held as a value across the organization; where safety is led from the top and owned by everyone; where everyone makes a personal commitment to go home safe each and every day and; where everyone looks out for the safety and well-being of others.

# HEALTH AND SAFETY

## Everyone Plays a Role

The ultimate success of our health and safety efforts depend on employee involvement. Employees and contractors across the Company are involved in health and safety activities through working groups, project teams, business improvement initiatives or by way of designated health and safety representatives. All operations conduct regular health and safety meetings and have established formal health and safety committees with both worker and management representation. In 2017, there were 10 active health and safety committees across the Company. In addition, a portion of the employee workforce at Candelaria, Neves-Corvo and Zinkgruvan are represented by negotiated collective employee labour agreements which contain specific health and safety provisions.

## Health & Safety Management Systems

Our Responsible Mining Framework (RMF), Responsible Mining Policy and RMMS standard set the context for the health and safety management system. Workplace hazard identification and control, qualitative and quantitative risk assessments, Life-Saving Rules, High Consequence Protocols (HCP's), safe work procedures and permit systems, safe work observations and incident reporting and investigation make up the remainder of our health and safety management system. In addition, our standards are aligned to ISO 14001 and OHSAS 18001 requirements.

Key to the health and safety management system are the 11 High Consequence Protocols. These protocols establish

our mandatory safe work program requirements and are fundamental to our fatality and significant incident prevention efforts. Each Lundin Mining operation must have mandatory training and formalized safe work procedures that meet HCP requirements.

### High Consequence Protocols (HCPs)

- Obligation to Refuse Unsafe Work
- Energy Isolation & Lockout / Tagout
- Working at Heights
- Ground Control
- Explosives Management
- Machine Guarding
- Personal Protective Equipment
- Confined Space Entry
- Operation of Equipment
- Lifting and Rigging
- Hot Work

## Health & Safety Reporting

Our health and safety performance results are reported at least monthly to corporate senior leadership and are reviewed on a quarterly basis by the Board of Directors HSEC Committee. Incidents resulting in a reportable injury and all high potential, non-injury incidents are reported, analyzed and shared across the Company on a weekly basis to emphasize key learnings to prevent recurrence. Consolidated health and safety performance data is frequently evaluated to identify trends and to develop focused incident and injury prevention strategies. Our health and safety performance statistics, incident details, summary investigation findings,

as well as lessons learned are readily available and accessible to employees, contractors and visitors.

## Measuring our Performance

We measure our health and safety performance using a combination of leading and lagging indicators. These indicators and associated performance targets are established during the annual business planning process and are published in corporate and site Annual Safety Action Plans. These plans are shared with our employees and contractors.

Leading indicators help us identify strengths and weaknesses in our health and safety systems and procedures and highlight areas where we need to act to address potential issues and risks before they result in an incident, injury or illness. Leading indicators include things like near-misses, identified hazard reports, safety observations and health and safety suggestions. More than 29,000 leading indicators were reported in 2017.

Our primary lagging indicator for measuring health and safety performance and benchmarking against our peers is the TRIF rate. Other lagging indicators used include LTIF rate, Medical Aid Frequency rate (MAF) and Lost Time Severity Rate (SR). All rates are calculated based on a 200,000-hour formula. We follow the US Occupational Safety and Health Administration (OSHA) definition of medical treatment for classification of recordable injuries at all operations and our reporting processes are aligned to the International Council on Mining & Metals (ICMM) [Health and Safety Performance Indicators manual](#).

 **29,000 +**  
leading health and safety indicators reported!

# 2017 SAFETY AT A GLANCE

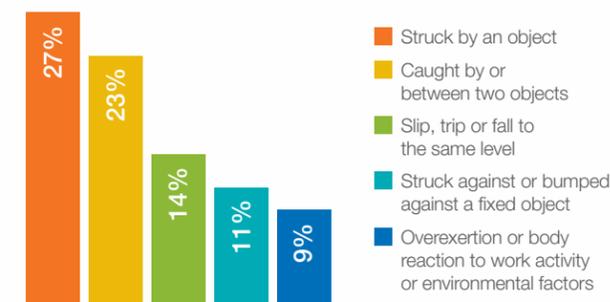


 **17,117,550**  
HOURS WORKED  
EMPLOYEES + CONTRACTORS

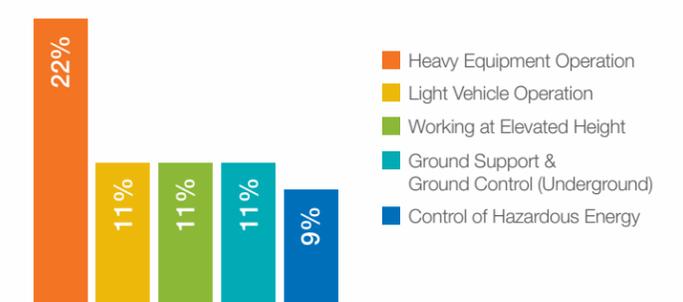
 **~8,500**  
FULL TIME EQUIVALENT (FTE) WORKERS  
(based on reported Hours Worked)



### Top 5 types of incidents resulting in recordable injuries



### Top 5 types of High Potential Non-Injury Incidents





Candelaria Chemical Lab

## INDUSTRIAL HYGIENE AND OCCUPATIONAL HEALTH



Occupational health is fundamental aspect of our overall health and safety effort. Each of our operations maintains an industrial hygiene program tasked with identifying and monitoring potential exposures to chemical, biological,

physical and ergonomic agents in the workplace. The objective of these industrial hygiene programs is to protect worker health by eliminating or minimizing and then controlling exposures to these agents.

In 2017, we worked to improve our occupational health and hygiene assessments to better understand potential sources of exposure, we increased monitoring activities and we worked to improve standardization of our exposure sampling processes.

We also added additional expertise to our teams and we purchased a variety of new sampling equipment. In 2018, one of our health and safety goals is to develop Occupational Health Exposure Profiles for each operation.

More than 6,800 workplace occupational health and industrial hygiene samples were collected across the Company in 2017. The contaminants and conditions we sampled for included diesel particulate; silica; respirable dust; oxides of nitrogen; asbestos; radon; heavy metals, such as lead; temperature and relative humidity; workplace illumination; noise; and general mine air quality. Sample results were used to verify compliance with safe workplace-exposure limits, both Lundin Mining's and regulatory, and to make improvements to better safeguard our workforce from injury and illness by eliminating, minimizing or controlling potential health-hazard risks.

In addition to industrial hygiene sampling activities, more than 4,200 health assessments and fitness-for-work examinations were conducted during 2017. These examinations included biological monitoring to assess potential worker-exposure to contaminants, such as heavy metals; hearing tests; respiratory evaluations; and workplace drug and alcohol screening. We operate on-site medical facilities at Neves-Corvo, Candelaria and Zinkgruvan, and we use outside medical service providers and local communities' clinics at our other operations. All of our employees also have access to Employee Assistance Programs and to confidential counselling services.



Eagle Underground Refuge Chamber and Employees



Neves-Corvo Mine Rescue Team



## CRISIS MANAGEMENT PLANNING AND EMERGENCY PREPAREDNESS

We work to maintain a high degree of emergency preparedness across each of our operations. Our formal emergency preparedness and crisis management process has been in place since 2013. We have developed crisis management plans and strategies for each of our operations, including our corporate headquarters. Our crisis management plans and strategies are reviewed and updated at least quarterly and are exercised annually. These plans are supplemented by site-specific emergency response plans that are catered to the unique aspects of each operation. Facilitated crisis management training and simulated practice scenarios were conducted at our Candelaria, Eagle and Neves-Corvo operations in 2017. In addition, 66 emergency response drills

were conducted across the Company in 2017, including underground mine evacuation exercises that involved more than 75% of our operating crews.

Each of our operations maintains emergency response capabilities suited to the working environment. There are 21 emergency response and mine rescue teams across Lundin Mining, with more than 250 volunteer employees and contractors trained as emergency responders. These teams received monthly in-house as well as off-site training on equipment use and emergency response techniques during 2017. These teams not only provide emergency response capabilities for our operations, but also can be called on to assist local authorities with near-mine incidents. The Neves-Corvo teams assisted local authorities by responding to several wildland fires in Portugal during the summer of 2017. The Neves-Corvo and Eagle teams took part

in national emergency response and mine rescue competitions, and the Candelaria teams participated in a multi-agency anti-terrorist drill involving local and Chilean federal authorities.

A variety of emergency response equipment is available to support emergency response activities at each operation. For our underground mines, available emergency resources can include secondary escape routes, individual self-rescuers, strategically located first-aid and emergency response equipment, fresh-air stations and emergency refuge chambers. In 2017, we upgraded our refuge chamber capacity and now have 75 underground refuge chambers in service. These chambers have a combined capacity for 674 people and are equipped with multiple means of communication, multiple sources of breathing air, rescue kits and supplies of food and water.

**6,800+**  
industrial hygiene samples collected in 2017

**4,200+**  
health assessments and fitness-for-work examinations conducted in 2017

**75** emergency underground refuge chambers in service

Combined capacity for **674 people**



# Economic Performance

## IN THIS SECTION

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## OUR APPROACH

The economic sustainability of our business is important to all of our stakeholders. We continuously monitor our performance and objectives, conduct opportunity and risk assessments and integrate these findings into our economic strategy. We regularly review and adjust our actions to reflect changing internal dynamics and external factors affecting our business.

Our 2017 economic strategy focused on improving margins and cash flows, re-investing in sustaining capital expenditures to support the stable future of our mines, maximizing value realization from our existing operations, maintaining a strong balance sheet, improving our net debt position and growth through careful reinvestment in capital programs and near-mine exploration. This strategy enabled the Company to maintain strong production and minimize cash costs at all mines. Lundin Mining's economic strategy is focused on stable base metals concentrate production, preserving margins and cash flows from all operations and continuing to maintain a strong balance sheet while pursuing growth opportunities at existing operations. This strategy strongly positions the Company to achieve or exceed annual production guidance, generating healthy cash flows and leading returns in a fluctuating and volatile commodity price environment.





## RELATED MATERIAL TOPIC: ECONOMIC PERFORMANCE

### What is in this topic:

The Company's financial performance and the economic value created by Lundin Mining

### Topic boundary:

Impacts are both internal and external, across all operations and of greatest interest to the financial community and industry associations

### Disclosures for this topic: 201-1

We continued our focus of reinforcing our commitment to a strong, sustainable and resilient business and progressed these efforts through engagement and collaboration with our workforce. Through the establishment of continuous improvement leads and committees, or independent idea contributions, employees were encouraged to share suggestions regarding production optimization, cost savings and cost deferrals. Many of these suggestions are being implemented and are expected to contribute toward improved cash flow and profit in 2018.



## ECONOMIC CONTRIBUTIONS

Lundin Mining's operations contribute to economic development and prosperity in regions where we operate. Beyond wages and salaries paid to employees and contractors, and taxes, royalties and fees paid to governments, we focus our major

community investments on initiatives that advance sustainable development. These investments include education and skills training, economic diversification, infrastructure, business incubators and building local capacity for economic empowerment; the Lundin Mining and Lundin Foundation teams have made significant progress in these areas in 2017. Our goals for 2018 include creating new economic diversification and local procurement programs and continuing to provide capacity-building training for local entrepreneurs.

As defined by the Global Reporting Initiative, our total economic value (revenues) generated in 2017 was approximately \$2.1 billion, and total economic value distributed was approximately \$1.3 billion, as detailed in the following table.

In \$US 000s	2017	2016	2015	2014
<b>ECONOMIC VALUE GENERATED</b>				
Revenue	2,089,664	1,553,734	1,706,662	951,314
<b>Total Economic Value Generated</b>	<b>2,089,664</b>	<b>1,553,734</b>	<b>1,706,662</b>	<b>951,314</b>
<b>ECONOMIC VALUE DISTRIBUTED</b>				
Operating Costs (excluding salaries) <sup>1</sup>	714,909	720,520	771,365	475,324
Employee Wages and Benefits	267,358	227,791	248,933	181,433
Payments to Governments Including Royalties and Taxes <sup>2</sup>	189,656	20,490	90,579	57,904
Payments to Providers of Capital	94,803	79,114	78,652	9,344
Community Investment	7,946	4,650	14,828	3,388
<b>Total Economic Value Distributed</b>	<b>1,274,672</b>	<b>1,052,565</b>	<b>1,204,357</b>	<b>727,393</b>
<b>Total Economic Value Retained</b>	<b>814,992</b>	<b>501,169</b>	<b>502,305</b>	<b>223,921</b>

<sup>1</sup> The Company makes payments to the governments in countries where we operate in the form of income taxes, royalties and property taxes. Penalties and interest related to income taxes have also been included.

<sup>2</sup> Payments to governments have been reported using GRI's Sustainability Reporting Standards and therefore are reported on a different basis than payments to governments that will be disclosed under Canada's *Extractive Sector Transparency Measures Act* (ESTMA). The Company's next ESTMA report will be issued separately in May 2018.

## LOCAL PROCUREMENT



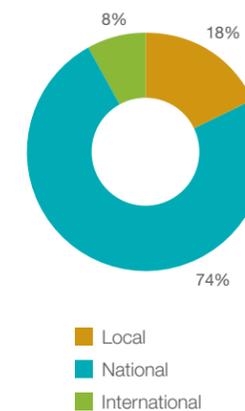
Mining companies can have a significant local economic impact through our local procurement decisions and processes. Goods or services that cannot generally be sourced locally include specialized or heavy equipment, explosives, chemicals and certain types of specialized technical consulting services. Rail and vessel shipping are also services that are generally procured outside of local areas. In 2017, approximately \$688 million (or 92%) of our goods and services were procured at the local or country level across the Company's operating sites in the United States, South America and Europe. Zinkgruvan and Neves-Corvo define local procurement to include all goods and services procured at the country level. At Zinkgruvan, our local procurement rate is 98.9%, and Neves-Corvo's rate is 72.1%. Given the larger geographic scope of the United States and Chile, these sites distinguish between local procurement (state-wide procurement) and country-level procurement (all other in-country procurement). Eagle's local procurement rate was 43.0% and the country-level procurement rate was 44.8%. At Candelaria, the local procurement rate was 18.6% and the country-level rate was 78.2%.

In 2017, we began working on local procurement projects with the Lundin Foundation at Neves-Corvo. These initiatives are building the supply chain group's capacity to develop and implement local procurement programs and also launch training programs for local entrepreneurs to potentially provide goods and services to the mine. This work will continue in 2018.



Candelaria Innovation and Entrepreneurship Fair

### Total Procurement



## RELATED MATERIAL TOPIC: LOCAL ECONOMIC IMPACT

### What is in this topic:

Lundin Mining's local procurement and local employment

### Topic boundary:

Impacts are both internal and external, across all operations and of greatest interest to government and regulators, opinion influencers, communities, local suppliers, industry associations and employees

### Disclosures for this topic: 202-2, 203-1, 204-1

# ECONOMIC PERFORMANCE



Candelaria Drill Operator



## LOCAL HIRING

It is a priority at Lundin Mining to draw our workforce from our host countries and, specifically, regional and local communities to ensure the economic benefit of employment remains, to the greatest extent possible, in our host communities. In part due to the developed regions in which we operate, one of Lundin Mining's strengths is its ability to source its workforce locally. However, it is occasionally necessary to fill gaps by sourcing specific skills, or a high level of experience or technical expertise, from abroad. In 2017, our employees were almost exclusively from in-country, with expatriates accounting for 0.93% of our employees across our operations.

Contractors and suppliers are expected to have practices in place that support and parallel Lundin Mining policies and standards and, in this regard, we ask that our contractors and suppliers also adhere to a similar standard with respect to the prioritization of local hiring.



## CASE STUDY

# Eagle Mine

## EAGLE – ACCELERATE UP AND WOMAN ENTREPRENEURS



Accelerate UP (AUP) is a non-profit organization offering business coaching within Marquette County, the region in which Lundin Mining's Eagle Mine is located. The program was launched in 2013 as a collaboration between the community and Eagle with the aim of ensuring sustainable, economic diversification, both during mining and upon closure. To achieve this, Eagle Mine worked closely with the community to establish the AUP program, identifying opportunities for business growth through the support of local entrepreneurs to expand and maintain their business ventures.

The AUP program is rooted in the Entrepreneurial Development (ED) model, which is based on the belief that "an empowered and engaged community will create a sustainable economy."<sup>5</sup> The program is a collaboration between the mine and the community designed to optimize new and existing local economic development programs and infrastructure. Working with community organizations, AUP introduces clients to traditional economic development partners only when the entrepreneurs are ready to utilize these services. The program supports local entrepreneurs, in particular female entrepreneurs, to expand and maintain their business ventures.

The ED model also encourages women, who might not have extensive experience in proposing their ideas to financial institutions, to discuss their plans with an Enterprise Facilitator who, in turn, encourages them to take the next step. This is a unique feature of the AUP program and a service that is not provided by traditional Economic Development Organizations (EDOs) and lenders.

According to Alex Kofsky, Accelerate UP Facilitator, "The best thing about the model is that it's not intimidating, but walking into a bank to discuss a small business loan is." Providing context, the overall impact of women-owned business on the U.S. economy is significant and evolving. In the last two decades, women-owned businesses have increased 114% compared to the 44% growth rate for all U.S. businesses. In 2017, 39% of entrepreneurs and small business owners in the U.S. were women, compared to 29% in 2007 and 26% in 1997.<sup>6</sup> These trends are evident in the AUP Program; according to Alex Kofsky, as recorded in January 2018, women-owned businesses accounted for 58.4% of AUP's total clients, representing an increase from 2013 when 20% of the program's clients were women.

AUP client Theresa Mauldin, owner of RED'Z Bulgogi BBQ Sauce in Marquette County, spent 15 years perfecting her BBQ sauce recipe. With no previous branding or business experience, Theresa reached out to AUP to help elevate her idea to the next level. AUP identified a local restaurant

willing to license her product rent-free for the first three months and connected her with a graphic designer to help develop a unique and memorable logo. As sales increased, it became evident that RED'Z inventory costs needed to be lowered. Theresa then received a loan through the Eagle Emerging Entrepreneurs Fund, a fund developed by a collaboration between the Lundin Foundation and Eagle Mine. This loan allowed her to purchase supplies at wholesale costs, resulting in a dramatic increase to her profit margin. A true success story, RED'Z can now be found in 152 stores across the Midwest and expects to see even greater growth in 2018 through online sales generated on the company's website. In Theresa's words, "Accelerate UP has been a crucial motivator. It helped me think of things I would have never thought of and has given me the confidence to expand and the tools I need to succeed" (Theresa Mauldin, RED'Z Bulgogi BBQ Sauce).

To date, AUP has 40 active clients, has assisted 23 businesses, created 49 new jobs and helped retain 11 jobs with a cumulative capital investment of \$2.4 million USD. Its goal for 2018 is to acquire \$1 million USD in new capital formation and help create eight new business start-ups. The program was originally funded by Eagle Mine between 2013 and 2015, and was renewed for an additional three years from 2016 to 2018.

To learn more about the Accelerate UP Program please visit [www.accelerateup.com](http://www.accelerateup.com).



<sup>5</sup> Barickman, R., Lessard, C., McFaul, S., 2014. Mitigating Boom and Bust: Creating a Sustainable Economy. Unpublished.

<sup>6</sup> American Express, 2017. The 2017 State of Women-Owned Businesses Report. May 2018. <http://about.americanexpress.com/news/docs/2017-State-of-Women-Owned-Businesses-Report.pdf>



Zinkgruvan Underground Operations

## RELATED MATERIAL TOPIC: COMMUNITY DEVELOPMENT

### What is in this topic:

Lundin Mining's community investments and capacity development (information in Social Performance section)

### Topic boundary:

Impacts are external, across all operations and of greatest interest to government and regulators, opinion influencers, communities and industry associations

### Disclosures for this topic: 201-1

## COMMUNITY INVESTMENT



Across Lundin Mining operations, our goal is to be a catalyst for sustainable development. Given that we operate in diverse socioeconomic contexts, our local teams are skilled at identifying the priority areas of focus for investments that are most impactful for our host communities. The most meaningful investment outcomes are achieved when our teams engage with stakeholders to identify impacts, risks and needs that are specific to these communities and align partnership opportunities with the Company's funding priorities. Please see pages 65-66 for examples of our 2017 community investments.

In 2017, Lundin Mining began advancing a Strategic Social Investment Standard and Corporate Guideline to replace the current Community Investment Corporate

Standard that was developed in 2015 and rolled out at all operations in 2016. The Strategic Social Investment Standard will articulate an approach for developing shared value through our projects, providing tangible support to local communities and host regions by working with communities, local governments and other partner organizations to promote sustainable development.

All sites aim to be responsive to development priorities of communities and stakeholders; contribute to the economic and social well-being of the local community and build local capacity; and prioritize investment areas that the community has identified as important, where both the Company and community find value and where the Company can have a meaningful impact without creating dependency. Under the new Strategic Social Investment Standard, each site will be required to develop a Site-specific Strategic Social Investment Policy that aligns with Lundin Mining's Responsible Mining Management System (RMMS) and with the Guiding Principles and Strategic Pillars set forth by the Lundin Foundation.

In 2017, Lundin Mining's social investments totalled \$7.95 million. The company has the following funding approaches to community investment:

### 1. Direct community investment in the communities / regions where we operate:

Total direct community investment expenditures across our operations in 2017 were approximately \$6.07 million (compared to \$4.7 million in 2016) and supported education and community development programs, as well as the environment, health, and small business economic stimulation. The increase in community investment compared to 2016 reflects our strong balance sheet and financial performance, the growing capacity across the company to identify outcomes-focused partnerships, and our provision of emergency response support to communities impacted by flood events near our Candelaria mine.

Operation	2017 Community Investment Expenditures
Candelaria	\$4,760,000
Eagle	\$557,000
Neves-Corvo	\$242,000
Zinkgruvan	\$121,000
Corporate contributions	\$2,266,841

### 2. Corporate contributions:

Lundin Mining contributed \$2.3 million to various organizations aligned with our community investment priorities. \$1.8 million of this amount was provided to the Lundin Foundation to support the development and implementation of social investment programs in regions where the Company has operations.

### 3. Lundin Foundation contributions

Since 2007, the Foundation has disbursed over \$67.5 million in support of building resilient communities located in and around resource-based operating sites.

## Our Partnership with Laurentian University

Lundin Mining partnered with Laurentian University in 2017 to support engineering students and enrich educational experiences for students through scholarships, bursaries, capital projects and research.

The Lundin Mining Corp. Bursary, established by the Company, provides two full-time students with the opportunity to attend university who, without this financial assistance, would not be able to attend Laurentian University. Students must be entering in their first year of university in an engineering program with a focus on mining. Where possible, at least 50% of the funds will be awarded to a female student and the remaining 50% to a second student, both of whom demonstrate some degree of financial need. Preference for one of the two awards will be given to Indigenous students. This bursary will provide funding for tuition, books, food and residence fees or equivalent if applicable, up to a maximum value of \$20,000 per year for five years.

Laurentian University acknowledges Lundin Mining for their support in committing a total of \$50,000 directed towards the Eagle Mine Operation Field Trip Fund. This will cover annual trips for five years to Eagle Mine (\$5,000 per trip for a total of \$25,000). The remaining \$25,000 will support other miscellaneous Laurentian student field trips, such as to mines in South Africa and Peru. The fund focuses on providing opportunities to those who otherwise would be unable to participate in international field trips to mines.



Laurentian University Field Trip





# Our People

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## OUR APPROACH

Lundin Mining places great emphasis on our most important resource – our people. Our success depends upon a safe, skilled and motivated workforce that conducts its work in accordance with the Company’s standards and policies.

We understand that employees who feel valued are not only more engaged but also perform better. Our leadership plays a critical role in motivating employees to achieve superior results. We want our employees to feel appreciated and inspired and to understand how their efforts contribute to our overall goals. We respect human rights and value equality and diversity in the creation of a progressive work environment. We value sustainable approaches to all work activities and foster an environment that encourages our workforce to contribute ideas to improve our sustainability performance. We promote a respectful and fair workplace culture with a high-level commitment to achieving a Zero Harm workplace and protecting the environment we operate in and in which our people work and live.





Zinkgruvan Employees

## OUR EMPLOYEES



At December 31, 2017, Lundin Mining globally employed 8,607 people<sup>7</sup>: 3,535 employees (3,221 in 2016) and 5,072 contract workers (4,279 in 2016) across four operating mines in Chile, Portugal, Sweden and the United States; our exploration group; and offices in Toronto, Canada. Contract employees are primarily engaged in maintenance, mine development, mining and project activities and are included in our safety performance statistics. They are also held to the same safety standards as Lundin Mining employees.

Reasons for fluctuations in staffing throughout 2017 included an increase in temporary workers for the construction

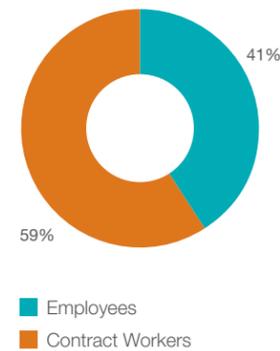
phase of the tailings project at Candelaria, the zinc expansion project at Neves-Corvo, seasonal workers, summer students and new hires at the corporate office. Our company-wide turnover rate for 2017 was approximately 5.4%, a significant decrease over 2016 (16%).

Mining has traditionally been a male-dominated industry. Attraction and retention of female employees, particularly for certain industrial positions, can be challenging. Lundin Mining has been proactively promoting equal opportunities for women, including requirements that qualified female applicants are included in open positions.

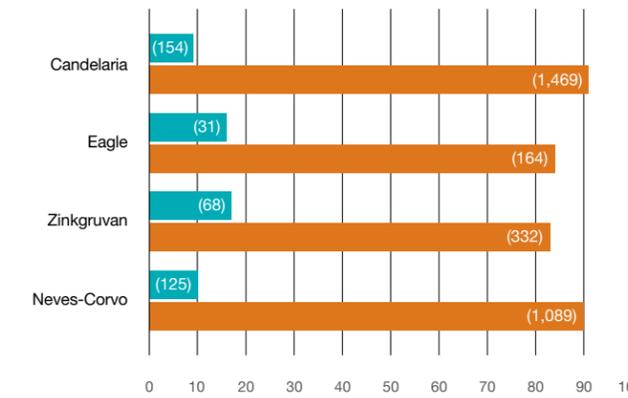
In 2017, four of our eleven vice presidents were female. In 2017, Lundin Mining increased the number of female employees at each operation (except for Eagle, where the total number of female employees remained the same

as at 2016 levels); in exploration; and at corporate offices, over 2016 levels. Overall, the Company increased the number of female employees by 61 (17%) in 2017, over 2015 levels, and continues to work diligently towards increasing employment opportunities for women across our organization.

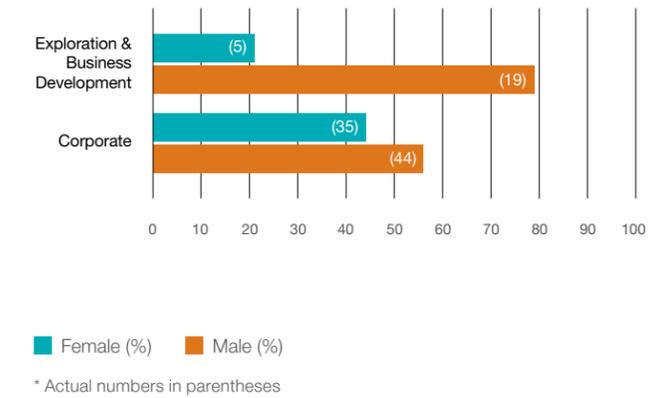
### Total Number of Employees 2017



### Percentage of Employees by Gender OPERATIONS



### CORPORATE OFFICES



\* Actual numbers in parentheses

Lundin Mining has established a compensation structure based on experience and salary scales associated with different positions, depending on expertise and level of responsibility, irrespective of gender. While some roles traditionally populated by women (such as administrative / non-technical positions) are paid less, women are paid the same wages as men for the same positions. Differences in compensation over time is the result of varying performance or a difference in seniority.

In 2017, the female-to-male compensation ratio was 88%. The ratio of women's to men's salaries at the operating sites ranged from 83% to 108% in 2017. This broad range is primarily caused by differences in the seniority of women employed at the mines. For example, at Neves-Corvo, the number of female employees is small, but their average seniority is high, with

women employed in managerial and senior technical, highly paid roles. At Candelaria, on the other hand, most of the female workforce is engaged in support roles.

Employee performance reviews are conducted annually or, in some operations, on a quarterly basis. In 2017, approximately 70% of employees Company-wide participated in a system-driven performance review process, with some additional employees having performance reviews outside of the system. Performance reviews occur consistently at the supervisory, management and executive positions, which have performance-based compensation bonuses assessed on metrics such as production, health and safety, environmental compliance and other corporate goals and individual objectives.

All employees participate in a bonus plan, and some mine bonus plans are not directly linked to individual performance, although the Company reviews incentive plans annually and periodically revises them, always with increased performance-related measures as an objective.



Employees at Ojos de Salado

<sup>7</sup> By head count



Eagle Mill Operator

## RELATED MATERIAL TOPIC: LABOUR RELATIONS

### What is in this topic:

Lundin Mining's approach to freedom of association and collective bargaining

### Topic boundary:

Impacts are both internal and external, across all operations and of greatest interest to employees, the financial community and opinion influencers

### Disclosures for this topic:

102-41, 407-1, MM4

## LABOUR RELATIONS



Lundin Mining supports the unencumbered right to freedom of association and collective bargaining at all of our operations. The relationship between the Company, its unions and employees is distinct at each of our mines; however, what is consistent is that our approach focusses on employee representation based on trust and transparency, respectful dialogue and constructive, peaceful resolution of any concerns, if and when they arise. We engage with union leaders regularly on matters of local labour laws, business changes and the negotiation of terms and conditions.

As of December 31, 2017, 83% of our employees across the Company had union representation (as compared to 66% in 2016). This figure mainly represents the non-managerial employees working at mine sites who are covered under collective bargaining agreements. Lundin Mining employees at Eagle Mine are not unionized, nor are our exploration group or corporate office employees.

During Q4 2017, several collective bargaining agreements were signed with trade unions at Candelaria that provide three years of labour stability.

There were processing plant stoppages at Neves-Corvo, organized by the local union, for a total of four days in October, five days in November and three days in December 2017. There were no other strikes, lock-outs, or work stoppages

of any significance across our other operations in 2017. There is no history of worker militancy in the last five years or more at any of our sites.

## TRAINING AND PROFESSIONAL DEVELOPMENT

Ongoing communication and training are essential elements for employees and contractors to successfully meet our stringent health and safety commitments, to develop the skills and knowledge of our employees and to achieve the objectives in our Responsible Mining Framework.

In 2017, Lundin Mining employees and contractors received a total of 80,592 hours of training, equating to an average of approximately 9.4 hours per employee / contractor.

Competency training to perform specific tasks and health and safety training for both general proficiency and the recognition of risks associated with workplace activities were the main objectives of employee training across our operations in 2017, followed by skills enhancement and education related to policy or governance.

In addition to our regular, ongoing training programs, our supervisors and managers continuously assess our workforce to identify areas of skill mastery and leadership development potential to enhance training opportunities or to advance or promote internally, wherever possible.

We consider relocation opportunities whenever possible before layoff of employees or, if desired by the employee, as part of their personal and professional development.

## CASE STUDY

# Zinkgruvan Mine

## ZINKGRUVAN RUN OF MINE – SEPT 2017



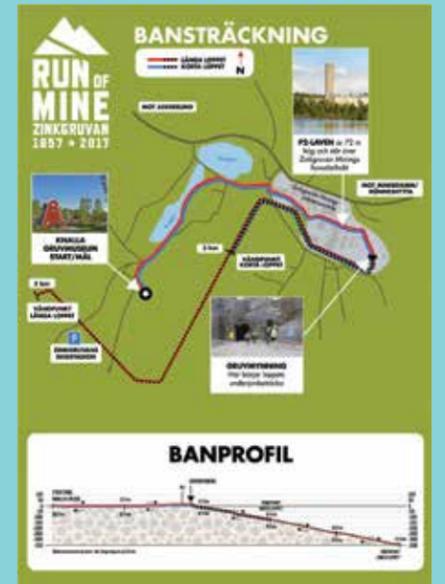
At Lundin Mining, we are committed to working closely with our host communities to provide lasting benefits through self-sustaining programs and initiatives that enhance the quality of life for those in areas where we operate. In celebration of 160 years of continuous operation, Zinkgruvan Mining, in partnership with the local Ski Club, Zinkgruvan IF, organized a community event called the Zinkgruvan Run of Mine 2017. More than 400 participants gathered at Zinkgruvan Mine on September 3, 2017, to run a race, with much of the course located underground. The aim of the event was to foster partnerships, invest in local businesses, support local recreational infrastructure and promote and encourage a healthy and active lifestyle for attendees and other community members.

Upon registration, runners could choose to participate in either the Stora Run or Great Run (10 km, of which 6 km were underground), or the Lilla Run, or Little Run (6 km, of which 2 km were underground). The historic Knalla Mine Museum was the race's starting- and

finishing-point, where participants were provided with helmets, medical services, food and beverage stalls and massage tents. Roughly 200,000SEK (\$25,000 USD) was generated through entry fees, all of which was invested in improving the quality and longevity of the ski trails, hills and overall infrastructure during the winter months at the Zinkgruvan IF Ski Club.

Due to recent milder temperatures and insufficient snowmaking machinery, Zinkgruvan IF has found it difficult to maintain adequate ski conditions throughout the winter. In supporting the Ski Club, the Run of Mine proceeds enabled Zinkgruvan IF to purchase four new snowmaking machines. These now work around the clock to ensure the ski resort has adequate snow coverage for the entire season, even when temperatures are mild, opening avenues for improved community access and youth recreational programs.

As a result of the success of this inaugural event, the Zinkgruvan Run of Mine is planned to become an annual event. The Run of Mine 2 is already scheduled to take place on September 8, 2018. All proceeds will be invested in the Zinkgruvan IF Ski Club.



Run of Mine 2017 Course

For more information on the Run of Mine, please visit: <http://www.zinkgruvanmining.com/index.php/zinkgruvan-run-of-mine/>





# Social Performance

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## OUR APPROACH

We operate mines in four different countries, each with unique and diverse cultures, languages, landscapes and levels of economic development. Adapting to these operational contexts, in conjunction with Lundin Mining's Responsible Mining Management System (RMMS) Standard and Responsible Mining Policy, guide our approach to social performance. Mining operations can generate significant direct and

indirect social benefits for local communities, including employment and capacity-building opportunities, the stimulation and diversification of local economies and business and community partnerships. Mining can also contribute to social impacts – including pressures on local infrastructure as a result of mine worker influx, increased traffic in communities and access to cultural resources. Understanding and proactively managing these benefits and impacts is integral to the success of our operations. For this reason, each of our sites is developing systems designed to optimize benefits, create shared value with host communities and anticipate potential social impacts of our activities. Our approach is to build strong relationships with those affected by our operations; uphold fundamental human rights; invest in meaningful community projects and sustainable development; and respect cultures, customs and values, while engaging in open and inclusive dialogue.





In 2017, the Company's social performance team undertook strategic planning workshops with mine management at every operation to develop site-level five-year social-performance strategic plans. These draft plans align with Lundin Mining's corporate risk framework and provide an assessment of project developments, social risks, potential impacts, contextual changes, engagement and social investment priorities. In 2018, each site will work to finalize these plans and identify the need for any additional corporate-level support or guidance to support their implementation.

In 2017, Lundin Mining also further elaborated and refined a series of corporate social management standards, aligned with international good practice. These include:

- Social Performance Management System Standard (SPMS)
- Social Impact Management Standard (SIMS)
- Stakeholder Engagement and Communication Standard (SECS)
- Social Investment Standard

These standards will be rolled out across the Company in 2018 and will include training for social performance teams. Annually, each site will undergo a self-assessment and independent audit of their implementation of the SPMS and five-year strategic plan. Sites are also expected to invite stakeholder input through a structured feedback process, such as stakeholder-perception studies.



## STAKEHOLDER ENGAGEMENT

Lundin Mining is committed to ensuring open and

inclusive dialogue and mutual understanding with our stakeholders during all phases of the mine-life cycle. Our approach is based on clear communication, transparency and trust and helps us to earn and maintain long-term community acceptance and access to resources. Effective stakeholder engagement creates value, manages risks and helps us to understand the interests and concerns of our stakeholders and to communicate our business objectives. It also helps to identify, on an ongoing basis, emerging issues that could affect our business operations as well as changing social situations that may influence stakeholders' quality of life and perceptions of the mine.

Each of our sites uses a systematic process to identify and prioritize stakeholders from direct and indirect influence areas, as well as those interested in or potentially affected by the site's activities. Special consideration is given to identify potentially vulnerable groups (either within the socio-economic or the political context, due to their specific identity or impacts from operations). To ensure continuous improvement, stakeholder mapping exercises are to be updated at least every six months or, in the case of abrupt local socio-economic change, at the earliest opportunity.

In 2017, we began updating our Stakeholder Engagement and Communication (SEC) Standard to ensure a systematic and consistent approach to engaging with communities, employees and other stakeholders

## RELATED MATERIAL TOPIC: STAKEHOLDER ENGAGEMENT

### What is in this topic:

Lundin Mining's approach to stakeholder engagement, community relations and use of grievance mechanisms

### Topic boundary:

Impacts are both internal and external, across all operations and of greatest interest to government and regulators, communities, opinion influencers, industry associations and the financial community

### Disclosures for this topic:

102-40, 102-42, 102-43, 102-44, 413-1, 413-2. MM8, MM9

identified through these mapping processes. Under the draft SEC Standard, which will be implemented in 2018, each operation is required to have a site-specific strategic SEC Plan that outlines an effective strategy for continually strengthening relationships with stakeholders and maintaining dialogue about the site's management of social impacts and its distribution and optimization of social benefits.

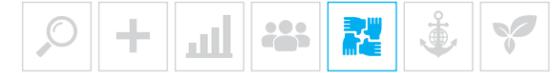
The table, on pages 53 to 55, provides an overview of stakeholder groups with whom Lundin Mining engaged in 2017, the types and frequency of engagement, some examples of key interests and concerns raised in 2017 and how the Company is responding to these concerns. In 2017, a select number of internal and external stakeholders were engaged as part of our materiality assessment.

Common forms of stakeholder engagement across our sites include:

- Formal engagement activities, including community meetings, one-on-one meetings, committee meetings (e.g. health and safety), site visits, grievance and suggestions mechanisms, and monitoring programs
- Informal engagement activities, including delivery of presentations at events, timely response to information requests, social media and training sessions
- Reporting, including our annual sustainability reports, government-focused revenue transparency reports, financial statements, compliance statements and news releases

These tools are used regularly to engage with stakeholders on an ad hoc, monthly, quarterly, bi-annual or annual basis.

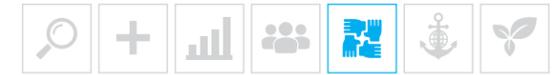
Stakeholder Group	Key Interests and Concerns Raised in 2017	Lundin Mining's Response in 2017	Frequency and Type of Engagement	Other Key Interests and Concerns
<b>Local Communities (Candelaria)</b>	Local impact of social investment projects	Piloting new forms of community engagement at Candelaria to increase transparency around decision-making and allow community members to propose and prioritize projects	Regular meetings planned throughout the year (monthly, at a minimum)  Timely response to requests for engagement	<ul style="list-style-type: none"> <li>• Environmental and social impacts</li> <li>• Local employment and procurement</li> <li>• Local economic diversification</li> <li>• Community infrastructure</li> <li>• Transportation issues, including traffic safety and speed reduction</li> </ul>
<b>Indigenous Peoples (Eagle Mine)</b>	A protest by a small number of individuals, related to an Eagle Mine permit application	Eagle hosted underground mine tours for leaders of the local tribes and participated in face-to-face meetings	Continuous engagement with local Native American tribes, within the context of identified Native American concerns, impacts and opportunities for collaboration and partnership	<ul style="list-style-type: none"> <li>• Water monitoring and protection</li> <li>• Economic partnerships</li> <li>• Closure planning and engagement</li> </ul>
<b>Non-governmental Organizations</b>	Climate change	Creating partnerships with local non-governmental organizations to enhance social and environment performance across our sites	Regular meetings planned throughout the year (quarterly, at a minimum)  Timely response to requests for engagement	<ul style="list-style-type: none"> <li>• Community development</li> <li>• Water management</li> </ul>



Stakeholder Group	Key Interests and Concerns Raised in 2017	Lundin Mining's Response in 2017	Frequency and Type of Engagement	Other Key Interests and Concerns
<b>Government</b>	Health and safety compliance	Our sites have formal health and safety management systems (standards and procedures) in place	Regular meetings or consultations	<ul style="list-style-type: none"> <li>• Environmental and labour law compliance</li> <li>• Hiring of local labour</li> </ul>
<b>Employees and Contractors</b>	Health and safety on site Labour relations Reclamation and closure	Our sites are developing and implementing internal employee satisfaction surveys  We conducted a formal employee / contractor safety-culture-perception survey  Social impacts are considerations in closure planning	Each operating site maintains a Joint Health and Safety Committee (JHSC)  Formal employee contractor safety-culture-perception survey	<ul style="list-style-type: none"> <li>• Working conditions</li> <li>• Career advancement</li> <li>• Dependency upon mine for local employment</li> </ul>
<b>Customers</b>	Health and safety	Our sites have formal health and safety management systems (standards and procedures) in place  Environmental, social and governance (ESG) performance	Daily contact  Timely response to information requests including ESG surveys to ensure they have accurate and updated information	<ul style="list-style-type: none"> <li>• Reliable supplies</li> <li>• High-quality products</li> <li>• Information on any hazards</li> </ul>
<b>Labour Unions</b>	Collective bargaining	Neves-Corvo entered negotiations regarding new rosters for employees  Collective bargaining agreements reached at Candelaria	One-on-one meetings Group meetings	<ul style="list-style-type: none"> <li>• Workers' interests</li> </ul>

Stakeholder Group	Key Interests and Concerns Raised in 2017	Lundin Mining's Response in 2017	Frequency and Type of Engagement	Other Key Interests and Concerns
<b>Shareholders / Investors</b>	Operational and financial performance Capital allocation Growth by acquisition and brownfields investments	The Company transparently responds to questions and provides relevant disclosures through this report and other corporate filings	Annual General Meeting Fulsome and timely financial statements, MD&A and news releases  Quarter-end and event-specific conference calls  Formal meetings, analyst and investor briefings, site visits  Responding to information requests to ensure accurate and updated information  Presentations to analysts and investors	<ul style="list-style-type: none"> <li>• Collective bargaining agreements at Candelaria</li> <li>• Labor action at Neves-Corvo</li> <li>• ESG performance Timely receipt of business critical permits</li> </ul>
<b>Lenders / Financial Institutions</b>	Capital allocation Operational and financial performance Progress on capital development projects	The Company transparently responds to questions and provides relevant disclosures through this report and other corporate filings	Regular financial and compliance statements  Timely response to requests for information	<ul style="list-style-type: none"> <li>• Collective bargaining agreements at Candelaria</li> <li>• Labor action at Neves-Corvo</li> <li>• ESG performance</li> </ul>
<b>Suppliers</b>	Local economic impact	Our sites have focused their attention on strengthening / supporting fair and open local procurement practices	Monthly meetings with local contractors and annual trade fairs	<ul style="list-style-type: none"> <li>• Financial health and payment terms</li> </ul>
<b>Industry Associations / Regional Business Associations</b>	Economic and regulatory performance	Transparent and proactive communication	Ongoing membership for industry associations  Participation in industry forums and work groups	





Lundin Mining's sites and operations have continued to strengthen their approach to stakeholder engagement in 2017.

Eagle maintained a focus on engagement as a departmental priority and continues to receive positive feedback from the community, elected officials and regulators in response to transparent public engagement regarding Eagle East and extending the length of operation. Semi-annual community forums, the operation of the Information Centre and continued implementation of the Community Complaints Procedure were key activities in 2017. Also, the site started to plan for a community-perception survey and an annual employee engagement survey to improve awareness of employee concerns and reinforce messaging regarding Eagle's values and practices. Eagle supports new regional exploration activities by undertaking engagement with community members in areas impacted by Eagle's expanded mineral interest.

In 2017, Zinkgruvan completed a community-perception study that revealed a high degree of community trust and positive views of the mine. The site continued formal and informal engagement throughout 2017 to maintain positive relationships with stakeholders and increase communications regarding water management and will continue in future years.

At Neves-Corvo, the Community Relations and Health and Safety teams worked with the Mayor of Almodôvar to develop a plan for the Fire & Rescue Academy to build community capacity for emergency response and first-aid training (see description below). Neves-Corvo engaged throughout the year with local entities, including schools, economic development organizations, municipal councils and environmental and biodiversity associations. In 2017, the Neves-Corvo Community Relations team initiated a local-procurement program to enhance opportunities for local suppliers. The

program included trade fairs to introduce local, national and international suppliers and support opportunity matching, as well as providing Neves-Corvo a chance to engage directly with these stakeholders. Neves-Corvo plans to continue broadening and deepening social engagement with the five municipalities nearest to the mine.

At Candelaria, the team continued to engage constructively with residents of nearby communities, such as Tierra Amarilla, Caldera and Copiapó, to understand their interests, concerns and long-term priorities for community development. In 2017, Candelaria continued constructive engagement with local fisherman that included planning for a Private Public Artisanal Fisheries Caldera Roundtable to support the artisanal fisheries sector. The site will continue to engage with the fishermen and other stakeholders at Caldera to create sustainable development projects.



Eagle Mine Woodland Flowers

## Fire & Rescue Academy

In 2017, the Health & Safety, Mine Rescue, and Community Relations teams at Neves-Corvo worked with the Mayor of Almodôvar to develop a plan for a Fire & Rescue Academy. The project, to be implemented in 2018 in partnership with local schools and health services, will provide training in emergency response related to fires and accidents to community residents (especially young people) and to local fire departments in the region. Prior to this initiative, the five municipalities nearest to the mine have had limited capacity to respond to fires and emergency situations.

The Academy will also meet the training needs of Neves-Corvo's Mine Rescue Team.

This world-class training facility will create economic development opportunities for local businesses and entrepreneurs due to Academy participants' needs for accommodation, transportation and food services. It will also strengthen the partnership between the mine, the Municipality of Almodôvar and experts in emergency response.

### RELATED MATERIAL TOPIC: INDIGENOUS RELATIONS

**What is in this topic:**  
Lundin Mining's approach to engagement with Indigenous Peoples

**Topic boundary:**  
Impacts are internal and external, focused at Eagle and Candelaria and of greatest interest to communities, opinion influencers and the financial community

**Disclosures for this topic:**  
411-1, MM5, MM6, MM7

### INDIGENOUS RELATIONS



Lundin Mining is committed to respecting and considering the rights, interests, concerns, traditional land uses and cultural activities of Indigenous Peoples within our sphere of influence, as articulated in our Responsible Mining Policy. For operations whose activities can directly or indirectly affect Indigenous Peoples, our RMMS Standard requires establishment of formal procedures and processes to address Indigenous Peoples' engagement, economic

inclusion and cultural heritage conservation, while ensuring we meet applicable legislative requirements.

Two of Lundin Mining's operations currently take place on or adjacent to Indigenous Peoples' territories:

- Our Eagle Mine and Mill are located on the ceded territory near the Keweenaw Bay Indian Community and Lac Vieux Desert Band of Chippewa Indians, both of whom are part of the Anishinaabe group of Native American tribes
- Our Candelaria operations are in the Atacama Region of Chile, where 3,000 people identify as Indigenous Colla community members



## Community Environmental Monitoring Program Partners With the Keweenaw Bay Indian Community

The Community Environmental Monitoring Program (CEMP) of the Eagle Mine began in 2012, based on community concerns regarding potential environmental impacts associated with mining operations. The CEMP is implemented by Eagle Mine and two community-based organizations – the Superior Watershed Partnership and the Community Foundation of Marquette County – and is defined and governed by formal agreements between these organizations. The CEMP is designed to build a comprehensive and accurate picture of environmental impacts that may result from Eagle’s operations.

In 2015, Eagle Mine approved additional monitoring requested through the CEMP program after concerns raised by the Keweenaw Bay Indian Community (KBIC) regarding potential impacts from mining operations on nearby edible plant species and species of cultural value. The study continued into 2016 and 2017.

Eagle Mine is in a water-rich environment; therefore, community environmental concerns primarily focus on water protection. During 2017, CEMP in cooperation with the KBIC expanded their efforts and began water-quality monitoring at eight sites in the headwaters of the Salmon Trout River. The headwaters of the Salmon Trout River begin as “seeps,” or natural springs, at locations where groundwater daylights and becomes surface water. Results of the monitoring will be used to assess potential impacts from mining activities to the seeps and the Salmon Trout River. Eagle Mine’s environmental performance data are made available to the public on the CEMP website [www.swpcemp.org](http://www.swpcemp.org).

Eagle Mine is committed to continuing constructive engagement with local tribes throughout the mine’s operation. Through regular dialogue, Eagle works with local tribes to identify common interests with respect to land (e.g. closure activities and mineral exploration), water (e.g. water quality monitoring) and cultural heritage, and to identify employment and economic development partnership opportunities.

In 2017, Candelaria focused on deepening its relationship with local Indigenous community members and began planning for a 2018 workshop to discuss best practices, lessons learned and critical aspects of Indigenous engagement. In addition to this workshop, Candelaria intends to further advance its understanding of engagement by planning and convening an Indigenous Peoples’ Roundtable.

At the corporate level, in 2018 Lundin Mining will develop an Indigenous Peoples’ Engagement Standard and Guidance Note to advance best practice and support the consistent implementation of our commitments.

In 2017, there were no disputes relating to land use, customary rights of local communities and Indigenous Peoples, or incidents of violations involving rights of Indigenous Peoples. As a result, grievance mechanisms were not used to resolve any issues.

### MANAGING IMPACTS



Lundin Mining operations are located immediately adjacent to local communities (such as Candelaria, Neves-Corvo and Zinkgruvan) or within a 25-km radius of local communities (Eagle). This proximity can result in a range of actual and potential impacts on local communities. The following table identifies the most significant social impacts for each location, based on site-level assessment, and reflects stakeholder perspectives from ongoing engagement efforts.

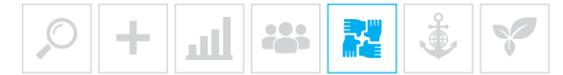
#### Selected Social Impacts From Our Activities in 2017.

Site	Actual Impacts From Our Activities	Example Mitigation Measures
<b>Candelaria</b>	<p>Impacts on local communities (due to influx of mining-related workers and associated pressure on housing stocks, blasting events and haul-truck activity)</p> <p>Impacts on economic development (due to more than 20 years of operation in an area of low economic development, which has created great dependency on the mine)</p>	<p>Buses and traffic scheduling are used to reduce interactions</p> <p>A bypass road is used for Copiapó and Caldera, and routes were modified in Tierra Amarilla to avoid residential areas</p> <p>Creation of a citizen committee to monitor noise and vibration related to blasting</p> <p>Working with the <a href="#">Lundin Foundation</a> on economic diversification projects to identify opportunities for regional development not based on mine activities and to provide support for local entrepreneurs</p>
<b>Eagle</b>	<p>Impacts on culture (due to impeded access to sacred sites) and the local economy (as mine approaches closure)</p>	<p>Continue dialogue to better understand cultural impacts, improve access to cultural sites and outline mitigations at closure</p> <p>Closure economic-impact mitigation will be outlined in the 2018 draft closure plan, including community capacity-building programs to mitigate economic loss from closure</p>
<b>Zinkgruvan</b>	<p>Impacts on economic development due to high local reliance on the Company for jobs and economic growth</p>	<p>Support local entrepreneurship programs and economic growth initiatives not related to the mine</p>
<b>Neves-Corvo</b>	<p>Impacts on economic development due to more than 30 years of operation in an area of low economic development, which has created great dependency on the mine</p>	<p>Working with the <a href="#">Lundin Foundation</a> on economic diversification projects to identify opportunities for regional development not based on mine activities to provide support for local entrepreneurs. In 2017 we began planning for a study to better understand the regional socioeconomic impacts, risks and opportunities</p>

<sup>8</sup> Image Source: Superior Watershed Partnership website: [www.swpcemp.org](http://www.swpcemp.org) December 2017 <http://swpcemp.org/cemp-and-kbic-partner-to-monitor-water-quality-in-the-headwaters-of-the-salmon-trout-river/>



# SOCIAL PERFORMANCE



In 2017, Lundin Mining updated its Social Impact Management (SIM) Standard to ensure that sites develop appropriate assessment processes (implemented across the life cycle) to identify and assess the actual or potential impacts. This process integrates issues prioritized by communities. Under this SIM Standard, all Lundin Mining operations are expected to have processes in place to recognize, record and respond to stakeholder issues / concerns as early as possible and on a consistent basis, both informally (through regular stakeholder engagement, dialogue and discussion) and more formally through a grievance mechanism.

Lundin Mining recognizes that there is a demonstrated link between stakeholder engagement, impact management and the long-term business drivers and success of Lundin Mining. For this reason, all Lundin Mining operations have a grievance mechanism in place to ensure that stakeholders have an avenue to voice concerns regarding activities and impacts of the Company and that these concerns are documented in a manner that is transparent and accountable and are responded to in a timely fashion. The sophistication of these grievance mechanisms varies across our operations; we will develop a Grievance Management Standard based on best practice and international standards in 2018.

The table below provides a summary of the total number of grievances filed through grievance mechanisms at each of Lundin Mining's operations in 2017. The table also highlights the number of grievances resolved / addressed.

Operation	Total number of grievances	Total number of grievances acknowledged and management ongoing	Total number of grievances resolved
Candelaria	46	17	29
Eagle	11	0	11
Neves-Corvo	6	2	4
Zinkgruvan	5	0	6 <sup>1</sup>

One grievance from 2016 was resolved in 2017.

In comparison to other operations, Candelaria had a higher number of grievances in 2017. This is due to the operational footprint of Candelaria being much larger than our other sites, the proximity of communities to the operation, strength of the grievance mechanism and stakeholders' awareness of the system. In 2017, the majority of grievances filed at Candelaria were related to unstable Wi-Fi connection (the mine provides free Wi-Fi services to 85% of Tierra Amarilla residents), blasting and related vibrations, and transportation (traffic dust, high speed of vehicles).

In 2017, Eagle Mine received inquiries from local media and environmental NGO's who were concerned that a 2016 fall of ground jeopardized the stability of the crown pillar (the pillar of rock left between the mine workings and the overlying surface). In response to community and media interests, Eagle Mine submitted information to help reporters and the community better understand that the fall of ground the mine experienced in 2016 is in no way connected to the stability of the crown pillar. The 10 other grievances filed at Eagle in 2017 were related to transportation. At Neves-Corvo, grievances were related to livestock, blasting and transportation infrastructure (roads). At Zinkgruvan, grievances filed were related to transportation, blasting and property access.



Atacama Region, Inclusive Courtyards

## COMMUNITY INVESTMENT



### RELATED MATERIAL TOPIC: COMMUNITY DEVELOPMENT

**What is in this topic:**  
Lundin Mining's community investments (additional information in Economic Performance section)

**Topic boundary:**  
Impacts are external, across all operations and of greatest interest to government and regulators, opinion influencers, communities, and industry associations

**Disclosures for this topic:**  
201-1

Lundin Mining is committed to providing sustainable benefits to local communities nearest our operations, working in partnership with governments, local businesses and NGOs to support meaningful and outcomes-focused initiatives. We recognize that social investment – including community investment, community development and capacity building – is an important benefit that mining operations can provide in partnership with other local, regional and national organizations and governments.

In 2017, we began updating our Strategic Social Investment (SSI) Standard to ensure that operations focus their social investment on identified community priorities and alignment with our business objectives. The SSI includes a focus on local content and stronger alignment with the Lundin Foundation, as well as on

broader social investments that create mutual value for both Lundin Mining business units and local stakeholders. Under the SSI, sites will be required to develop an SSI Management Plan (SSIMP) that includes specific action plans and budgets for all social investment projects, programs and measures. The Standard will be completed in 2018 and roll-out will include training at all operations to ensure SSIMPs are aligned with local contexts and operational needs.

Many of our social investment projects will be implemented over several years, with some of the results only being demonstrated over the medium-to-long term. This reality will be reflected within the sites' annual review of the SSIMP, which considers the need for any adjustments based on changing local circumstances, needs and priorities, capabilities, and emerging risks and opportunities.

Open day at Candelaria Mine





# Our People





## The Lundin Foundation

The Lundin Foundation (“Foundation”) is a Canadian non-profit organization principally supported through contributions from the Lundin Group of Companies. The Foundation works in partnership with its corporate partners, host governments and local communities to improve the management of, and benefit streams from, natural resource development projects.

The Foundation’s activities are focused on four strategic pillars:

			
<p><b>Education and Skills Training</b> Support local populations to gain industry-relevant skills required for direct or indirect employment linked to operations.</p>	<p><b>Local Supplier Development</b> Strengthen capacity of local small and medium enterprises to capitalize on procurement opportunities during each stage of the mining life cycle.</p>	<p><b>Economic Diversification</b> Enable the growth of small businesses in sectors unrelated to natural resource development.</p>	<p><b>Social and Environmental Innovation</b> Launch and scale up innovative solutions to pressing community challenges.</p>

Within their SSIMP, each site identifies opportunities to collaborate with the Lundin Foundation to access additional expertise and resources, where appropriate and to magnify the impact of their investments. Lundin Mining’s site teams benefit from the Foundation subject matter expertise and we have developed a shared approach to stakeholder engagement, as the Foundation projects are a platform for engaging with new stakeholders, such as small- and medium-sized enterprise entrepreneurs who can become part of our supply chain or part of economic diversification strategies.

### Highlights from 2017

In 2017, Lundin Mining and the Lundin Foundation deepened their partnership in two regions of operation: Neves-Corvo and Candelaria. Broadly speaking, our collaboration focused on two areas: 1) economic diversification, including regional economic assessment, investing in economic diversification opportunities and providing small business support and incubators; and 2) local procurement, including supplier assessment and local procurement strategies. At Candelaria, the partnership also included support for entrepreneurs to implement their business plan and bring viable products to market.

### Neves-Corvo

In partnership with the Lundin Foundation, Neves-Corvo hosted local-supplier trade fairs to introduce local entrepreneurs to mine suppliers and to create partnerships for local procurement and supplier capability development. In 2018, Lundin Mining will be offering training programs to 25 preselected companies, providing them with additional skills to apply both in their work with the Company and with other industries.

### Candelaria

In partnership with the Lundin Foundation, Candelaria developed a local procurement program with 30 local suppliers to provide capacity building, technical assistance and financing to help them increase the goods and services purchased by Candelaria. Candelaria developed the Social & Environmental Innovation Program, which has helped 50 participants to develop five pilot business ideas. Four businesses are now commercial and are less dependent on Candelaria.

In 2017, community investments across our operations included funding for projects in the areas of economic diversification, local employment and training, culture and heritage, education, environmental stewardship, sports and recreation, community wellness, health services (access to high-quality medication), women / girls and community safety and health.

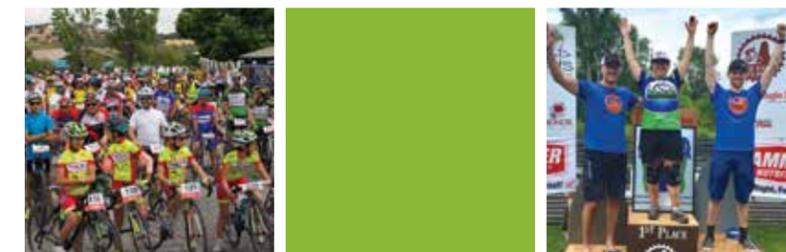
The following tables highlight key community investment initiatives at each of our sites. Information on the value of our 2017 community investment contributions can be found in the Economic Performance section of this report on page 42.

### Eagle

Program (& Key Issue)	Purpose	Outcome
<b>Marquette-Alger Technical Middle College</b> (Community Development)	To create opportunities for high school students to earn college credit in a skilled trade	Two students earned an Associates degree and plan to go directly to the local workforce. Seven will continue their education in pursuit of a bachelor’s degree and one started his own business
<b>Eagle Emerging Entrepreneurs Fund</b> (Community Development & Local Economic Impact)	To contribute to the long-term economic development of Marquette county by creating and retaining jobs by supporting growth outside of the mining industry. The Foundation provides affordable financing to high-risk clients that would otherwise be ineligible for traditional financing	Since inception, 54 jobs have been created and 136 jobs retained. Over \$1 million has been funded, which leveraged an estimated \$9.5 million in revenue to the local economy

### Zinkgruvan

Program (& Key Issue)	Purpose	Outcome
<b>Mining Tourist Project</b> (Local Economic Impact)	To create a tourism initiative around mining to attract more tourists to the area in partnership with community groups and the local government	The Knalla Mine and other mine-related tourist attractions in the area attract about 3,000 visitors to the area each year
<b>Lundin Mining Technical Scholarships</b> (Community Development, Local Economic Impact)	To support talented local students in technical disciplines and create interest in the mining industry	Five students have been awarded a technical scholarship every year since 2015. Several of these students have later been offered employment by Zinkgruvan





## Neves-Corvo

Program (& Key Issue)	Purpose	Outcome
<b>Support for Local Schools</b> (Stakeholder Engagement, Community Development)	To contribute to education and training of the youth in the region. Provide access to education by supporting the purchase of text books and hot meals in the five surrounding municipalities	More than 500 children in the region have benefited from school material and hot meals. Around 15,000 meals have been provided
<b>Community-focused Road Safety Awareness Campaign</b> (Community Development, Health & Safety)	To build road safety awareness among the public through a regional awareness campaign delivered in partnership with the Portuguese Road Safety Initiative	Feedback received from national road safety authorities and across the five regional municipalities indicates the program was well received
<b>Community Access to Potable Water</b> (Water, Community Development)	To provide a free supply of potable water to three villages around the mine	Working in partnership with Agda (the public entity that supplies water in the region), the mine provided 56,236 m <sup>3</sup> of potable water in 2017

## Candelaria

Program (& Key Issue)	Purpose	Outcome
<b>Tierra Amarilla Heritage Home Restoration Project</b> (Community Development)	To support the preservation and restoration of heritage homes in Tierra Amarilla. This heritage restoration project is for homes located on the main avenue of Tierra Amarilla, Miguel Lemeur. Homes qualifying for this project must have certain characteristics: one continuous facade, constructed of “quincha” (mixture of mud and hay), and be of only one storey	In 2017, 30 houses were restored
<b>Flood Relief in Tierra Amarilla</b>	To provide emergency response and flood relief to the Community of Tierra Amarilla, which was severely impacted by flooding in mid-May 2017	At least \$500,000 was dedicated to this effort



In 2017, Neves-Corvo released its first Social Investment Policy and Application form to its stakeholders. The policy prioritizes projects that build capacity for economic diversification, sustainable development and employee engagement.

At Candelaria, as part of the Inventa Comunidad 2017 program, and in partnership with the University of Atacama, the first Collaborative Social Innovation Meeting was held in Copiapó, Chile. The objective of the day was not only to motivate local engineering students to pursue a career in social entrepreneurship, but also to connect the program to the younger generations in the community, who are the future of the country.

Close to 100 students attended the meeting, where they were given the opportunity to learn from three social entrepreneurs and put their innovation skills to the test. Students were asked to propose a concrete social solution to a current local issue, then present to a panel of judges. The team that presented the best idea was provided with a financial award by Candelaria Mine.

Throughout 2018, all Lundin Mining operations will continue to develop and implement projects in partnership with the [Lundin Foundation](#) to advance economic diversification, local supplier development and innovation.



## CASE STUDY

# Candelaria

## INVENTA COMUNIDAD



Lundin Mining’s Candelaria Mine established Inventa, a community-based innovation program, to develop solutions to pressing environment and social issues that directly affect the Tierra Amarilla, Copiapo and Caldera communities. Inventa includes two components: Inventa Comunidad (IC) and Inventa Accelerator (IA).

IC begins with a series of entrepreneurial boot camps where community members develop and “pitch” ideas (70 in 2017 alone). The program culminates in a competition with local judges to select the most promising business ideas. In 2017, these included ideas ranging from the use of waste material to create emergency housing for victims of natural disasters (entrepreneur Javier Muranda) to enhancing the social inclusion of children with different abilities through the design of courtyards (entrepreneur Paola Klein). Chosen entrepreneurs receive preliminary financing, training and technical assistance to develop their business idea. In the second phase – the IA program – they receive further financing, business advice and technical support to help them secure external investment and launch their businesses. The ideas being supported by the IA program are diverse, ranging from the creation of wind energy from a water storage system (YAKKA energy) to improvements in food security through the creation of commercial-scale organic gardens (Comunidad Ecoturística Bahía) to paving stones produced from tailings (Ecoadoquines).

The program is financed by Lundin Mining (\$220,000 USD total to both components of Inventa) and implemented by the [Lundin Foundation](#), with support from the Candelaria team and the Chrysalis Business Incubator at the Universidad de Valparaiso in Chile.

### Select 2017 Inventa Accelerator Entrepreneurs

#### YAKKA

YAKKA was originally conceived as a mechanism to collect and store water from mist and dew on the slopes of hills to be used for agricultural purposes. Through the prototyping process, the entrepreneur discovered that YAKKA also has a powerful wind-energy generating capacity, which led to the launch of Yakka Energy in 2017. Through the Accelerator Program, the entrepreneur secured an additional \$42,000 USD in funding from the government agency Corporación de Fomento de la Producción de Chile (CORFO) and secured sales of the wind generation module to a local Indigenous community and to the Ministry of Housing and Urban Planning of Atacama.

#### Ecoadoquines

Artisanal miner Gonzalo Campusano, founder of Ecoadoquines, creates paving stones produced from tailings from the mining process to reduce pollutants and contribute to the recovery of community spaces. The tailings are enclosed with cement and lime to produce paving stones that are tested for metal leaching to ensure compliance with Chilean standards. In addition to the funding through the Accelerator program, the entrepreneur secured an additional \$25,000 USD from CORFO to further develop the business and is currently searching for strategic alliances.

#### Organic composting

The Comunidad Ecoturística Bahía Inglesa agency created a food security initiative to promote the creation of community gardens and advanced the recycling of organic waste. Approximately 200 people living in the community have benefited from the initiative. In 2017, a sustainable seed bank was constructed and the organization received a 5-year lease with the Ministry of National Lands on a 4-hectare plot of land for the creation of a commercial-scale organic garden. The organization is currently searching for partnerships with restaurants and local chefs to begin the commercial sale of products.





# Materials and Product Stewardship

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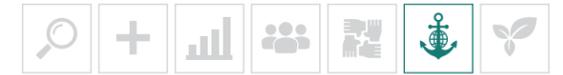
## OUR APPROACH



Stakeholders (local communities, governments, customers, suppliers, transportation providers and increasingly, our shareholders) want to understand the potential risks involved in the handling and transportation of our products. Consumers are also expressing increased interest in our supply chain and responsibly managed or produced goods.

Lundin Mining's marketing initiatives focus on being a preferred supplier by providing sustainably developed, quality products; technical and marketing support; and dependable, on-time delivery at reasonable terms.





Concentrate Train Approaching Eagle

Concentrates are moved by truck and rail car, either in bulk or in containers, directly to smelters in North America and Chile; or to ports where they are exported to smelters in Europe, Asia, or South America. Lundin Mining's concentrates are sold and transported in accordance with EU and international regulations, and shipments are accompanied by appropriate documentation.

We evaluate potential health and safety impacts associated with the production of raw materials and base metal ores and concentrates to ensure that the health of employees, business partners and service providers is not affected. We continually evaluate risks associated with beneficiation and with transportation of concentrates, and take steps to address identified risks prior to proceeding with the activity. Lundin Mining maintains

a strong focus on ensuring that the contractors we engage are appropriately equipped and trained and follow best-practice procedures to enable them to deliver our concentrates safely.

### OUR ACTIVITIES

The port facility at Punta Padrones in Chile is owned and operated by Lundin Mining. At Setúbal port, in Portugal, the Company owns and operates their rail car unloading area and associated warehouses and lab, while leasing the conveyor belt and ship loader from the port. The ports at Otterbäcken in Sweden and Trois-Rivières in Québec, Canada, are operated under contract by third parties with oversight by Lundin Mining. The most recent combined third-party Health, Safety and Environment (HSE) & Product Stewardship Audit was conducted at all outbound port facilities

that handle Lundin Mining concentrate, and the results indicate an excellent calibre of overall performance.

To reduce any potential for off-site migration of dust or dirt, concentrate is transported in covered trucks and rail cars to the outbound port areas, where various concentrate management procedures, including truck washes and sweeper trucks, are utilized. As an example of initiatives undertaken to reduce potential impacts associated with our concentrate shipping on the environment at our port facilities, Lundin Mining's Setúbal Port in Portugal has installed a covered conveyor belt connecting the concentrate warehouse to the ship loader. The conveyor belt is fully enclosed and has a water-misting dust suppression system that reduces dust emissions during loading.

Similar loading facilities are in place at our Punta Padrones port facility in Caldera, Chile, which services our Candelaria mine.

For each shipment, Safety Data Sheets (SDS) providing information on the health, safety and environmental hazards of our concentrates are provided to Lundin Mining personnel, customers, and to those handling and shipping our products. During 2017, the Company updated and standardized the format of the SDS for all of its products and set procedures for annual updates or for action when regulatory changes occur.

The initiation of our SDS update program is one of many activities undertaken to stay current and compliant with constantly changing international regulatory requirements and as required by the Company's Responsible Mining Management System. Lundin Mining follows the Globally Harmonized System (GHS) of classification of concentrates, which follows the 2013 Marpol Annex V regulations for ocean shipping of non-ferrous concentrates. The Company

classifies its concentrates to comply with the changes to the International Maritime Solid Bulk Cargoes (IMSBC) Code relating to Materials Hazardous in Bulk (MHB), which came into effect on January 1, 2015. Lundin Mining also adheres to the IMSBC code as it pertains to the safe loading, transportation and discharge of solid bulk cargoes.

During 2017, seven minor concentrate transport-related non-compliances were identified at our Neves-Corvo operation during routine checks by the Portuguese transport authority, all related to transport documentation and labelling of containers. Minor fines for these incidents were approximately €4,000 in total (an estimated \$4,520), excluding one which had not been imposed by the end of the reporting period and will be disclosed in our 2018 Sustainability Report.

We have not received any complaints regarding breaches of customer privacy or losses of customer data. There have also been no fines for non-compliance with laws and regulations concerning the provision and use of our products.



Setúbal Port Conveyor Belt



Neves-Corvo Concentrate Loading at Setúbal Port



# Environmental Management

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## OUR APPROACH

Effective environmental management is integral to the success of all of Lundin Mining's operations, from day-to-day activities on-site, to corporate strategic planning. Lundin Mining's operations are committed to compliance

with applicable laws and regulations, our Responsible Mining Policy and Framework, our integrated Responsible Mining Management System (RMMS), our corporate commitments and adoption of best-practice environmental standards, and alignment with UNGC Principles.

Our primary objective is to minimize potential environmental impacts, throughout the life of our mines and post-closure, through implementation of environmental management controls and procedures that are tailored to meet the individual needs of each of our operations in their unique environmental settings. To protect the environment, we apply the precautionary approach, such that where there are threats of harm to the environment or to human health, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.





English Bay (Bahía Inglesa) Atacama Region

We achieve this through effective use of environmental impact assessment to identify, quantify and eliminate or mitigate impacts; integration of environmental controls within our operations, with monitoring to evaluate their reliability and effectiveness and to identify potential opportunities for improvement; employment of risk assessment and management techniques to minimize the potential for unforeseen environmental impacts or incidents; and routine checking and continuous improvement through the annual environmental audit process. All of our operations have also developed emergency preparedness procedures for potential environmental incidents.

### Environmental Permitting and Compliance

The permitting and approvals process and compliance management are critical aspects of exploration and mining and ensure that the mining sector is effectively regulated to prevent possible negative impacts to the natural environment or the interests and rights of local communities. In addition to environmental approvals and permits, other mining-associated activities may require permits that are not covered by environmental regulations.

When approvals and permits are issued, they typically include conditions that need to be met by the Company for the permit to be maintained. Meeting these permit conditions, obligations, or requirements is often referred to as “compliance” and, at Lundin Mining, ensuring compliance is a key objective in all we do. To support permitting and compliance activities during all phases of the mine life cycle, extending from exploration through to post-closure, we have developed the Responsible Mining Management System (RMMS). The RMMS is supported by effective Standards, Procedures, Guidance, Training, Auditing and Corrective Action programs to support continual improvement and enhanced environmental performance and compliance. In addition, we participate in various regulatory and industry associations, such as the Mining Association of Canada, UN Global Compact, the Canadian Institute of Mining, the Prospectors and Developers Association, the CDP (formerly the Carbon Disclosure Project) and Euromines, to monitor developments and issues in the regulatory environment and to adapt consideration of these developments into our evolving Management System.

All of the Company’s mines operate under current valid environmental approvals and licenses. In 2017, Lundin Mining’s corporate and operational permitting teams undertook significant environmental approvals and permitting efforts at each of its four mines. At our Neves-Corvo mine, approval of the Environmental Impact Assessment (EIA) in support of the Zinc Expansion Project and associated Tailings Management Facility expansion was successfully achieved and detailed engineering activities to support relevant post-EIA permitting and construction approvals was progressed. The Mine Closure Plan (MCP) and a supporting site-wide hydrogeological investigation were also initiated. Additional achievements included the update of the site-wide Environmental License, or Título Único Ambiental (“TUA”) in August 2017.

Candelaria undertook extensive permitting in 2017, resulting in the successful achievement of the Alcaparossa Environmental Impact Assessment approval to extend its operation life until 2022 and approval for the expansion of production from 6,000 to 14,000 tonnes per day at the Candelaria North sector underground mine. Other successfully received approvals included the update of the Tailings Pipeline Operation Permit (SERNAGEOMIN) for Ojos del Salado;

the update of the Alcaparrosa Operation Permit (SERNAGEOMIN) for Ojos del Salado; approval of a technical permit for the operation of the processing plant and marine terminal, referred to as the Planta & Port Permits, for Candelaria to 2030; approval of technical permits for the operation of the Candelaria mine and waste rock area; approval of the Ojos de Salado Tailings Pipeline Environmental Impact Declaration (DIA), for extension of the life of the Ojos del Salado Tailing Pipeline to 2030; and progression of the update to the Candelaria Mine Closure Plan (MCP). The successful receipt of these multiple approvals within the indicated timeframe reinforces Candelaria’s reputation as a responsible operator and supports the continuation of our mining activities in the Atacama region.

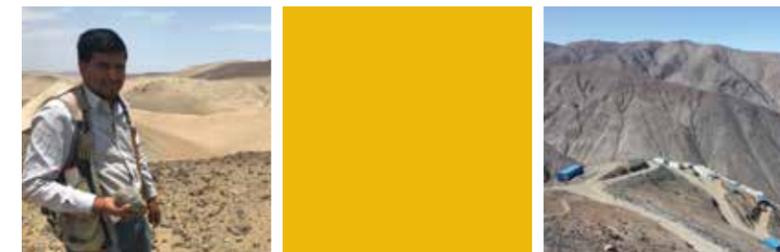
Our Eagle mine also experienced a successful year in permitting, with the receipt of the Eagle East 632 Mine permit amendment for the development of the decline ramp to the property boundary and the approval of the Mine permit amendment application for development beyond the property boundary, including the exploitation of the Eagle East deposit. These approvals allow for the advancement of work at our Eagle East deposit, bringing great value to the mine and Company. Additional

approvals included the approval of a General Permit Modification to the Inland Lakes and Streams Act (ISLA) Permit for the Humboldt Mill and progression of the Humboldt Part 632 Mine Permit amendment application to allow placement of additional tailings in the former Humboldt open pit.

Permitting and approvals efforts at our Zinkgruvan mine focussed on the progression of technical studies to support the establishment of conditions of the 2015 Enemossen environmental permit issued to the site in early 2015.

### Environmental Risk Assessment

Environmental risk assessments are conducted on a routine basis at all of our operations, in accordance with the requirements of our Corporate Environmental Standards and Procedures. Environmental risks that are deemed to be significant are included in Lundin Mining’s Corporate Environmental Risk Register, which is used to support continuous improvement and planning processes. Credible risk scenarios are identified and assessed, not only for normal mine site operating conditions, but also for exploration, construction, maintenance, plant shutdown and start-up, and reasonably foreseeable emergency situations.



# ENVIRONMENTAL MANAGEMENT



## Environmental Audits

Third-party Environmental Audit programs have been carried out at our operations on an annual basis since 2015. The integrated HSEC Environmental Audit program, conducted in accordance with the requirements of our Standards, has been effective in providing a more comprehensive and collaborative review across Lundin Mining's various business activities.

Third-party audits typically consist of the review and assessment of operational environmental data, environmental reporting and previous audits; interviews with environmental team staff at each site; and site walkover observations. Results of the audit program, including corrective actions, are provided to our operations for review and resolution and are reported to Lundin Mining management and the HSEC Committee of the Board. In 2017, a status review of 2016 audit action items was undertaken with sites, in combination with the roll-out of the RMMS. The RMMS implementation program will continue throughout 2018, with initiation of audits against the RMMS starting in 2019.

In addition, the Environmental Management Systems of our Chilean mines (Candelaria and Ojos del Salado) have been certified for many years under the international ISO 14001 Standard, which was updated in 2015. ISO certification was in place and current throughout 2017, expiring in March 2018. Candelaria and Ojos del Salado underwent a recertification process in late 2017 and received confirmation of successful recertification in January 2018 for a period of three years.



Candelaria Mine Tailings Reservoir

## Environmental Incidents and Compliance With Environmental Laws

Lundin Mining is committed to a rigorous reporting system for unplanned HSEC and security incidents. The system classifies incidents in each of these categories on a severity scale of Level 1 (low) to Level 5 (high). In the Environment category, the severity of an incident is judged by the impact upon one or more of: (a) species, communities and habitats that comprise ecosystems of the natural environment; (b) the degree of regulatory non-compliance; and (c) the potential concern to local communities. Incidents that are classified as Level 3 or above are reported to the Board of Directors and are disclosed in our sustainability reports.

In 2017, one Level 3 environmental incident and regulatory non-compliance occurred in the form of a small tailings spill (estimated at approximately 200 m<sup>3</sup>) from the pipeline between the processing plant and the tailings facility at our Neves-Corvo operation. While the majority of the spill remained within the site's boundary, a smaller quantity entered a neighbouring property. Neves-Corvo contained the spill, reclaimed the tailings and removed affected soils over an area of approximately 0.5 hectares. There was no water contamination. The pipeline was repaired and Neves-Corvo has since been investigating options to reduce the potential for this type of incident in the future.

On December 23, 2016, Minera Candelaria filed an appeal with the Environmental Court related to water management issues in 2013 and 2014 (details about these issues can be read on page 58 of our [2016 Sustainability Report](#)). On June 15, 2017, a hearing was held before the Environmental Court; a decision remains pending and is subject to appeal to the Supreme Court. Any resolution will be reported in future disclosures.

At our Neves-Corvo site, a routine inspection visit from the Environmental Inspection Authority was carried out in late 2015. In April 2016, the site was notified that it had not formally reported two instances of regulatory non-compliance from 2014, related to a wastewater discharge and noise, in accordance with requirements. Neves-Corvo challenged this position and submitted a response to the authorities. At the close of 2017, the matter was in process of resolution.

## WATER MANAGEMENT



At Lundin Mining, we implement a comprehensive water management planning process. Its purpose is to allow us to operate without conflict with other water users and to minimize any negative impact on water sources, receiving environments and associated ecosystems. Throughout 2017, our operations continued to commit to best practices for water management through the implementation of the Lundin Mining Water Management Group Procedure, which includes requirements for evaluation of water-use efficiency, implementation of measurable improvements to prevent unnecessary pressure on shared resources and evaluation and minimization of environmental and social impacts on surface water and groundwater environments.



Zinkgruvan Water Sample Collection

Further supporting our commitment to sustainable water management, our local engagement strategies, forward-planning efforts and commitment to continuous improvement have allowed our operations to maintain positive relationships with local water users and organizations and to seek opportunities for improved water re-use and conservation. Our operations actively monitor impacts of both our water withdrawals and discharges, focusing on aspects such as water availability for other users, recreational value of both water resources and receiving environments, water quality and biodiversity. While compliance with site permits and applicable laws is a key goal, all of our operations strive for continuous improvement to avoid or minimize impacts resulting from water withdrawal or discharge.

## RELATED MATERIAL TOPIC: WATER

**What is in this topic:** Lundin Mining's water management strategies and water availability, withdrawal, recycling, discharge and quality at sites

**Topic boundary:** Impacts are both internal and external, across all operations and of greatest interest to communities, government and regulators, opinion influencers and industry associations

**Disclosures for this topic:** 303-1, 303-2, 303-3, 306-1



## Water Withdrawal and Recycling

In recent years, our operations have renewed their focus on water management to ensure responsible use of this shared resource in a changing climatic environment. Lundin Mining's operations have all developed water balances, and hydrometric data are used for operational control and reporting purposes. The volume of rainwater captured at our operations is estimated using locally measured precipitation and catchment surface areas. Although some water abstraction from natural water systems is unavoidable, Lundin Mining seeks to reduce water abstraction through operational efficiency, water re-use and recycling.

Lundin Mining relies on different sources of water to operate its mine sites, including desalinated seawater, surface water, treated municipal waste water, mine water and groundwater abstraction wells. Surface run-off and snow melt, where available, are also sources of water at some of our operations.

These primary sources are supplemented to a significant degree by water reclaimed from our tailings management facilities and water treatment plants for re-use by our operations.

Site	Primary Sources of Water for Use by Operation
Candelaria	Desalinated seawater; treated municipal waste water; mine seepage
Eagle	Mine Site: Utility and potable wells; mine dewatering
	Mill Site: Groundwater and rainfall/run-off entering the former pit; industrial and potable wells
Neves-Corvo	Santa Clara Reservoir; mine dewatering
Zinkgruvan	Lake Trysjön; Lake Åmmelången; mine dewatering

At Lundin Mining, we have assessed that, in 2017, two of our sites withdrew water from a source that has been identified as having a high value or importance to local communities.

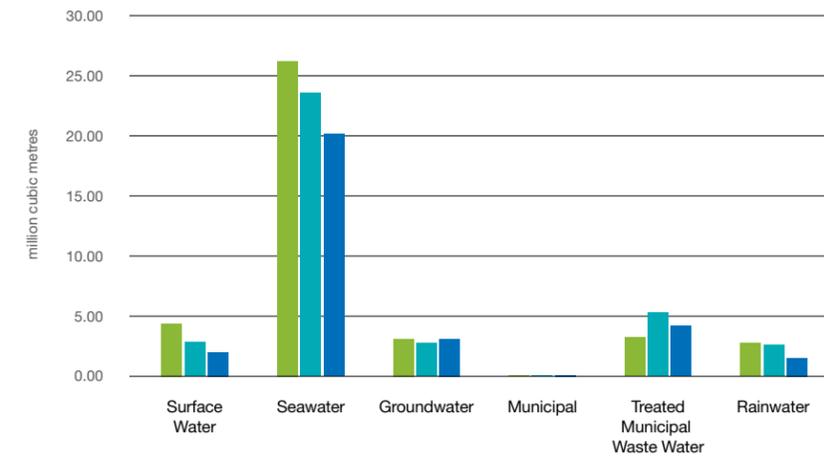
- Our Candelaria operation was required to temporarily obtain potable water from local groundwater wells as a result of a significant flood event in the region in May that caused disruption to the municipal supply
- Part of our Zinkgruvan operation's supply is sourced, under regulatory approvals, from local lake systems

At our Candelaria Complex, our operations recognize the importance of the Sector 4 Copiapó River groundwater source to local communities and the fact that the area has been legally declared a zone of water scarcity. Accordingly, our Candelaria Complex developed and operates a state-of-the-art water desalination facility at our port, Punta Padrones, to supply site-operation water requirements, thereby reducing pressure on precious water resources in the Region. Candelaria does not use groundwater from wells for mining processing.

Candelaria continues to maintain a strong focus on improving water stewardship opportunities, culminating in the establishment of a connection to the municipal system for potable supply in September 2016 and ceasing routine use of groundwater from the Copiapó Valley wells for potable supply for consumption by employees. As a result of the flood event in May 2017, it was necessary for Candelaria to return temporarily to local wells for potable supply, during which time the operation succeeded in limiting the quantity used to less than 0.4% of its total annual water withdrawal. In September 2017, Candelaria was able to reconnect to the municipal system and has since continued potable water access from this public source. Following interruption to local supplies resulting from the 2017 flood event, Candelaria also directed approximately 30–40 litres/second to local communities for potable water use.

At Zinkgruvan, our team continues to carefully manage conditions at Lakes Trysjön, Åmmelången and Viksjön. Water from these systems is used for mineral processing activities and to maintain designated minimum flow rates at the Björnbäcken and Dalbyån Creeks. Zinkgruvan monitors water levels weekly at these lakes and adjusts its practices to minimize its impacts on the community and environment; there was a single measurement recorded slightly outside the permitted water-level range at one of the lakes (Åmmelången) in 2017.

Annual Water Withdrawn, by Source: 2015 to 2017



Year	Surface Water	Seawater	Groundwater	Municipal	Treated Municipal Waste Water	Rainwater
2015	4.37	26.22	3.10	0.07	3.22	2.76
2016	2.85	23.57	2.76	0.06	5.30	2.58
2017	2.00	20.15	3.10	0.09	4.19	1.51

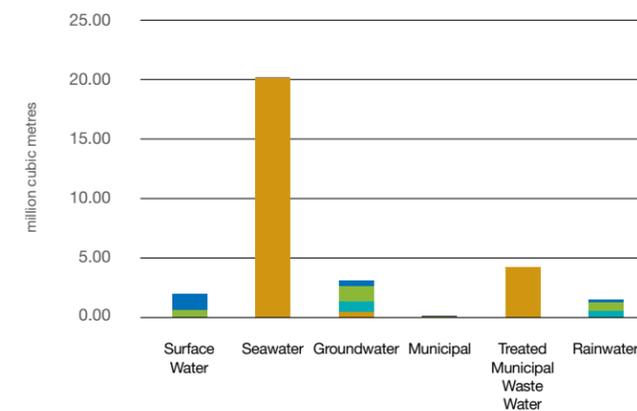
Note: 2015 data includes our formerly owned Aguablanca site in Spain.

Lundin Mining's total water withdrawal in 2017 (all operations included) was reduced to 31.0 million cubic metres from 37.1 million cubic metres in 2016. Sixty-five percent of the total (approximately 20 million cubic metres) was seawater withdrawn for treatment, 7.9 million cubic metres of which was used at our Candelaria operation, the remainder being returned to the sea.

Our operations at Zinkgruvan and Neves-Corvo withdraw additional water for supply to local communities. These quantities are provided as a service to the local community and, therefore, are not included in our operational water withdrawal accounting.

Surface water withdrawal trends from 2015 to 2017 continue to demonstrate the success of a strong, responsible water stewardship focus at our operations, resulting in a reduction of overall water consumption at all the sites.

Water Withdrawal by Source, and Operation 2017



Operation	Surface Water	Seawater	Groundwater	Municipal	Treated Municipal Waste Water	Rainwater
Zinkgruvan	1.36	0.00	0.54	0.02	0.00	0.27
Neves-Corvo	0.64	0.00	1.23	0.00	0.00	0.73
Eagle	0.00	0.00	0.90	0.00	0.00	0.50
Candelaria	0.00	20.15	0.44	0.08	4.19	0.00





Neves-Corvo New Water Treatment Effluent Ponds

Our Neves-Corvo Mine in Portugal, located in a semi-arid and sub-humid zone, has continued to progress the implementation of medium-term and long-term water management projects to promote sustainable practices. Neves-Corvo's overriding water management objectives in recent years have been to reduce the consumption of fresh water, maximize water storage capacity inside project boundaries and reduce discharges.

Lundin Mining is proud that the Neves-Corvo operation has reduced its fresh water withdrawal from the Santa Clara reservoir from almost 3 million cubic metres in 2014, to 0.6 million cubic metres in 2017 – a reduction of 80% in three years. Responsible use of this fresh water resource becomes increasingly important given the reliance of other users on this shared resource and in view of changing and less predictable rainfall patterns in southern Portugal.

With this aim, the Neves-Corvo water balance has undergone a comprehensive review with a focus on reduction of fresh water intake through increased water

treatment and re-use in tandem with additional internal storage. During 2017, the focus areas included:

- New and upgraded treatment facilities at the site to improve the quality of recirculated water
- Supply of sufficient re-used water of appropriate quality for each operational area
- Adaptation of equipment and processes to allow recycled treated water to be used
- Installation of equipment that allows improved control of water consumption
- Commissioning of a new domestic waste water treatment plant to allow re-use of this water for dust control activities
- Actively growing internal awareness, whereby all departments have responsibility for promoting the reduction of fresh water use by identifying opportunities for the use of treated or untreated recycled water in place of fresh water

Comprehensive forward-planning has been conducted to ensure that the existing and proposed future upgrades to the water management infrastructure consider water treatment as well as water supply requirements for Neves-Corvo's Zinc Expansion Project.

Zinkgruvan has also adopted a strong focus on responsible use of fresh water, given the environmental and recreational value of the lakes from which water is supplied. Significant benefits have resulted from efforts to optimize the water balance, with Zinkgruvan's first full year of data since the improvements were introduced in late 2016 showing a measurable reduction of over 0.7 million cubic metres of fresh water use compared to 2016 levels. This has been achieved through a dual focus at this operation on maximizing water management at the tailings facility and increasing water recirculation at the processing plant.

Building on the water stewardship activities demonstrated in our Candelaria Mine's approach to groundwater, the decreasing trend in seawater withdrawal also represents improved water-related efficiencies at this mining complex.

At Lundin Mining, our measure of water recycling is primarily in the form of water reclaimed from our tailings management facilities for re-use in our operations, measured using flow meters. In addition, there is an increasing contribution from other internal flow streams, such as water treatment plants, as our operations increase their focus on internal water re-use efficiency. Overall, in 2017, Lundin Mining's record of water recycling exceeded overall water volumes withdrawn and included

recycling 73.3 million cubic metres of water, equating to every cubic metre of Lundin Mining's total water withdrawn being used approximately 2.4 times. Recycling efficiency improvements remain a focus for our operations; however, the overall quantity of water that may be recycled is influenced by mineral throughput.

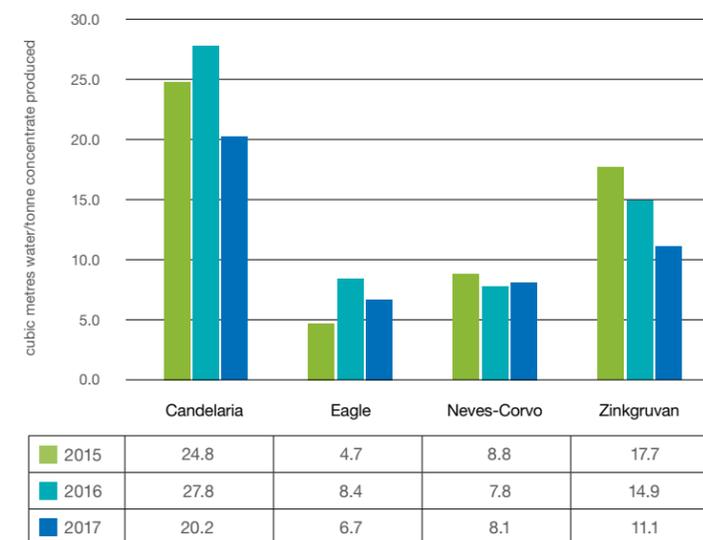
### Water Withdrawal Intensity

As a means of tracking water withdrawal efficiency, Lundin Mining measures water withdrawal intensity, reported as cubic metres of total water withdrawn per tonne of concentrate produced. The exception to this is Candelaria, where we find it most meaningful to assess efficiency of water use at that site by using the total water drawn into the boundaries

of the mining complex for the calculation. The proportion of seawater that passes through the desalination plant and directly back to the sea (and is never pumped to the mining complex), is excluded.

There were measurable efficiency improvements in 2017 at Candelaria, Eagle and Zinkgruvan. As Neves-Corvo's fresh water withdrawal efficiencies gained over the last few years inevitably begin to level out, there is an effect on the operation's overall water withdrawal intensity. While fresh water withdrawal intensity at the operation has continued to decrease this year, which is noted as a positive development, there was a slight overall increase in withdrawal intensity in 2017.

Water Withdrawal Intensity: 2015 to 2017



Note: Candelaria data excludes seawater that was not pumped to the mining complex.



Neves-Corvo Water Level Monitoring



Aerial View of Candelaria Desalination Plant

## Water Discharges

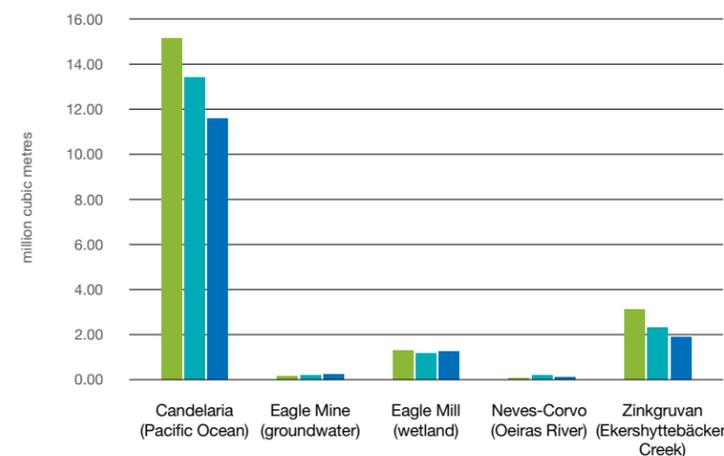
Water management at Lundin Mining's operations involves discharging treated water in accordance with regulatory requirements and corporate standards, which include consideration of the aquatic and terrestrial environments and the communities and users downstream of our operations. All of our operations have effective water quality monitoring systems in place, with routine regulatory reporting, to verify that offsite discharges are compliant with environmental regulatory requirements developed to protect people and the environment.

We report planned and unplanned water discharges from our operations. All of our reported planned discharge quantities are measured by flow meters. Our Candelaria mining complex operates on a zero-discharge basis, with discharge only from the desalination plant at the coast. Due to the nature of our site operations, rainwater collected at our sites and entering our water management systems is included in our reported discharge quantities. None of our water discharges in 2017 were re-used by another organization.

Across our operations, we discharged just over 15 million cubic metres of water into the environment during 2017. It is significant that Candelaria's discharge is entirely from the desalination plant to the ocean, rather than to a fresh water environment and the quality of this discharge reflects only the original seawater chemistry and the desalination process. Except for a small increase in discharges at our Eagle mine, all our operations discharged a smaller volume in 2017, as compared to 2016.

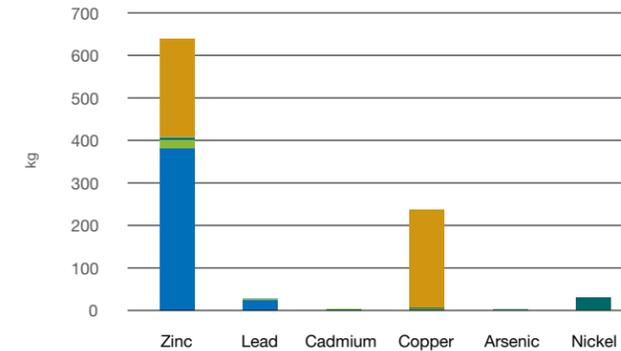
Site	Discharge Receiving Body
Candelaria	Desalination Plant: Pacific Ocean
	Mining and Mineral Processing Complex: Zero-Discharge
Eagle	Mine Site: Groundwater discharge
	Mill Site: Wetland (adjacent to Escanaba River)
Neves-Corvo	Oeiras River
Zinkgruvan	Ekershyttebäcken Creek (Lake Vättern catchment)

## Annual Water Discharged to the Environment, by Operation: 2015 to 2017



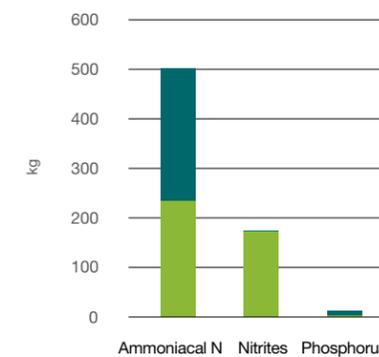
	2015	2016	2017
Candelaria (Pacific Ocean)	15.12	13.41	11.58
Eagle Mine (groundwater)	0.14	0.19	0.23
Eagle Mill (wetland)	1.30	1.18	1.25
Neves-Corvo (Oeiras River)	0.08	0.20	0.09
Zinkgruvan (Ekershyttebäcken Creek)	3.13	2.30	1.88

## Metal Discharge Loads 2017



Operation	Zinc	Lead	Cadmium	Copper	Arsenic	Nickel
Candelaria (to sea)	232			232		
Eagle Mine (to groundwater)	1	0.1	0.02	0.1	0.1	0.2
Eagle Mill (to wetland)	6	0.6	0.1	0.7	1.0	29
Neves-Corvo (to river)	19	1.3	0.3	3.0	0.2	0.9
Zinkgruvan (to creek)	381	24	1	0.3		

## N and P Species Discharge Loads 2017



Operation	Ammoniacal N	Nitrites	Phosphorus
Eagle Mine (to groundwater)	0.157	0.006	0.001
Eagle Mill (to wetland)	266		10
Neves-Corvo (to river)	235	173	2

blank = not measured.

Significant benefits, associated with the water management infrastructure upgrades at Neves-Corvo in recent years, have also been achieved. During 2017, the operation has been able to more closely monitor and manage the potential for impacts on the Oeiras River and reduce the frequency and quantity of discharge accordingly. The increased flexibility in the system for storage and recycling capability at the mine, as well as improvements to the water treatment process consisting of the installation of a temporary reverse osmosis plant in 2017, have allowed the operation to reduce and even cease, discharge according to natural water flow rates in the Oeiras River.

All of our operations treat their discharge water to achieve an acceptable quality prior to discharge to the environment. Candelaria's desalination process requires only pH neutralization prior to discharge back to the sea. Eagle uses a comprehensive treatment process, culminating in reverse osmosis and final pH adjustment for its groundwater discharge, and metals precipitation/sedimentation and ultrafiltration in its wetland discharge. Neves-Corvo's water treatment system is based on an oxidation process, followed by pH adjustment for metals and sulphates precipitation. A clarifying step is used to remove solids, and then a reverse osmosis process is completed for some of the water prior to discharge. Zinkgruvan's process is based upon residence time in a clarification pond.

Our annual chemical loads are not subject to regulation; they are calculated by our operations as part of their routine tracking of emissions to the environment. Our annual discharge chemical loads for 2017 were generally comparable with recent years. Since the chemical parameters measured by our operations are site-specific, discharge load data do not exist for all parameters at all sites.

Our discharges are regulated in terms of flow rates and concentrations of chemical parameters. Apart from one occasion at Neves-Corvo (manganese concentration) and three occasions at Eagle (chronic toxicity level in wetland discharge), Lundin Mining's operational water discharges were within regulatory compliance during 2017. There were no unplanned discharges at our operations in 2017.



Neves-Corvo Cerro de Mina Reservoir

## RELATED MATERIAL TOPIC: TAILINGS AND WASTE ROCK MANAGEMENT

### What is in this topic:

Lundin Mining's approach to tailings and waste rock management. Although not a material issue, non-mineral waste is also discussed in this section

### Topic boundary:

Impacts are both internal and external, across all operations and of greatest interest to the financial community, governments and regulators, communities, opinion influencers and industry associations

### Disclosures for this topic: MM3

## TAILINGS, WASTE ROCK AND NON-MINERAL WASTE MANAGEMENT



Lundin Mining's operations all generate mineral waste in the form of waste rock and tailings. Our multi-faceted approach to their management provides us with confidence that potential environmental and social impacts associated with our mineral wastes can be reliably identified and minimized.

Efficient mining and mineral processing, along with disposal underground where practicable, allow our operations to minimize the quantities of these wastes to be stored on surface. Furthermore, a clear understanding of the characteristics of the wastes, the facility construction materials and the temporary and/or final settings in which they are placed enables our operations to minimize any risks associated with their disposal.

Operational and post-closure physical and geochemical stability of mineral waste deposits are a priority at Lundin Mining. Robust design, construction, quality control, inspection and monitoring are necessary to ensure the physical integrity of our waste facilities. An important environmental consideration for our mineral wastes is the potential for generation of acidic water, known as acid rock drainage (ARD), that can be formed when sulphide minerals, such as pyrite, in waste rock and/or tailings are exposed to moisture and air. ARD, if present, can adversely affect the quality of waterways or groundwater by introducing undesirable levels of acidity and dissolved metals. Appropriate geochemical characterization programs allow us to understand and manage any ARD and/or metal-leaching risks associated with our mineral wastes. Equally important in determining the appropriate design for our disposal facilities is a comprehensive assessment of the disposal setting, addressing aspects including geology, geotechnics, hydrogeology, hydrology, seismicity, biodiversity and ecosystems, and of course, local communities.

## Waste Rock Management

Almost 48.5 million tonnes of waste rock were generated across all of Lundin Mining's operations in 2017, of which 97% (47 million tonnes) was produced at Candelaria, due to the scale of its open pit operation.

At Candelaria, the waste rock that is not used for construction of tailings management facility (TMF) embankments on-site is stored in terraced surface-waste depositories located immediately to the north of the open pit (*Deposito Esteril Norte*) and south of the open pit and plant area (*Deposito Esteril Nantoco*). Stability of the waste rock depositories is a high priority and their design is based on geo-mechanical and seismic parameters. The waste rock has been classified as having a low potential for acid generation, annual rainfall average is 15 mm and there is no groundwater infiltration. As a result, no specific ARD controls are required.

Expansion of the north waste rock depository for the Candelaria 2030 project was included as part of the permitting package. Candelaria's design of the proposed expansion includes the reconfiguration of approximately 60 million tonnes of material to reduce the potential for "shadow effect," thereby mitigating potential for impact on the local Tierra Amarilla community.

At Eagle, the waste rock requires management to reduce the potential for generation of ARD. Returning waste rock to the underground workings is required under permit, since on closure, the mine will be flooded and the oxygen-deficient environment is ideal for preventing the potential generation of ARD. Since the mining schedule requires that waste rock is temporarily stored on surface at the mine, the potential for ARD is managed by lining the surface storage facility and collecting all contact water for treatment at the mine water treatment plant. Since 2014, Eagle has progressively returned waste rock underground, with the dual

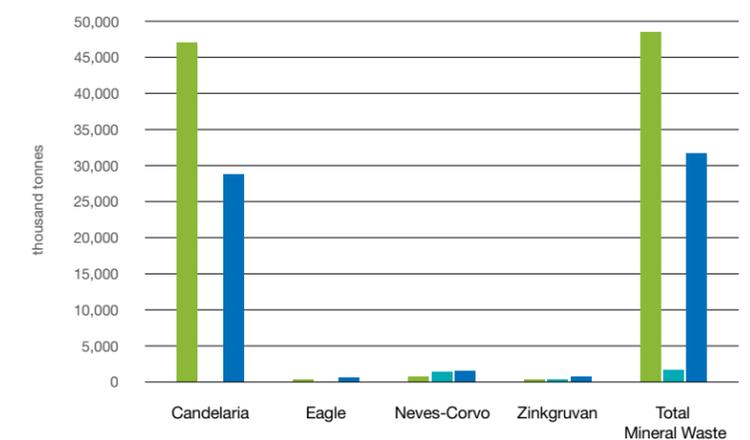
benefit of stabilizing previously mined areas as well as controlling potential ARD. Waste rock from the development of Eagle East is either directly stored underground or trucked to the waste rock storage facility for subsequent return underground. At the close of the reporting period, 554,580 tonnes of waste rock were stored at the surface. Because of the use of waste rock as backfill in both Eagle and Eagle East, it is anticipated that no waste rock will remain at the surface at mine closure.

Neves-Corvo's comprehensive Waste Management Plan is designed to mitigate the risk associated with the potential for ARD generation in its waste rock. Where possible, waste rock with acid potential is retained in the underground mine and used as backfill to stabilize previously mined areas. The remainder of the waste rock is ultimately used in the TMF for construction of dykes and cell cover. The storage facility where waste rock is temporarily stockpiled at

the surface incorporates a peripheral drainage system to allow collection and management of contact water, along with the use of engineering construction methods based on geological and geotechnical characterization studies to ensure overall stockpile stability.

Zinkgruvan does not maintain waste rock stockpiles – all waste rock is used underground to stabilize previously mined areas or used in construction of on-site access roads or new TMF embankments. Characterization studies for ARD potential have shown that the waste rock poses no immediate or long-term risk, owing to the low sulphide content and the high proportion of calcareous minerals with buffering capacity. As a precaution against the potential generation of elevated metals concentrations in water, usage of waste rock at the surface is restricted to TMF embankments and road sections where contact water is directed to the TMF.

Total Weight of Waste Rock and Tailings Generated 2017



	Candelaria	Eagle	Neves-Corvo	Zinkgruvan	Total Mineral Waste
Waste Rock	47,022	317	763	387	48,489
Tailings to Underground Mine	0	0	1,325	281	1,607
Tailings to Surface/Former Pit Facility	28,844	546	1,477	785	31,652

# ENVIRONMENTAL MANAGEMENT

## Tailings Management

Lundin Mining operates four mines with active tailings management facilities (TMFs) and uses two widely accepted methods of tailings disposal: underground disposal involves mixing tailings with products, such as sand or cement, followed by disposal as a paste backfill or hydraulic backfill in previously mined areas of underground mines; surface disposal involves placement in engineered surface impoundments or, in the case of Eagle, in a previously mined open pit. Of the four Lundin Mining operations, Eagle Mine is the only operation that does not have a constructed tailings impoundment.

Active surface tailings impoundments can represent one of the more significant environmental risks for the mining industry and, in keeping with best industry practice, Lundin Mining takes considerable care to ensure our TMF's are well-designed, built to exacting standards, well-maintained, inspected and reviewed, and carefully monitored.

All Lundin Mining's operations manage their tailings in accordance with the Company's Tailings Management

Technical Standard, developed in 2015. The Tailings Management Technical Standard requires that all TMFs, including major water retention dams, are planned, designed, constructed, operated, decommissioned and closed in such a manner that:

- All structures are stable
- Solids and water are managed within designated areas
- All aspects comply with regulatory requirements
- Facilities conform to Company standards, accepted international practices and the technical guidelines of the applicable jurisdictions
- Commitments to local stakeholders are fulfilled

Sites are required to identify a Responsible Person to ensure proper management of the TMF and ensure procedures for each facility, including an Emergency Preparedness and Response Plan, are documented and made available to site personnel charged with the safe operation of the facility.

A component of the Tailings Management Technical Standard is the requirement for regular independent third-party tailings reviews, which are recognized as a best practice for effective tailings and water dam stewardship. The reviews are focused on impoundment stability and integrity. Another component of the Tailings Management Technical Standard is the requirement that all sites conduct regular geotechnical, hydrogeological and environmental monitoring to meet regulatory requirements and prevent the uncontrolled release of tailings and/or water to the environment.

In 2017, independent third-party tailings reviews were completed at all four Lundin Mining operations. No significant issues were identified during the third-party reviews at any of the sites and all sites showed continued improvement from the previous year. Results from the third-party reviews are carefully tracked, and progress updates are sent to the Board-appointed HSEC Committee each quarter.



Neves-Corvo Tailings Pipeline



## Candelaria

The Candelaria TMF is located less than two kilometres northwest of the Candelaria open pit and receives tailings from both processing plants within the mine complex. The physical stability of the tailings embankments is inspected and monitored on a continuous basis by Candelaria and a monitoring report is submitted quarterly to the Chilean Mining and Geology National Authority. The tailings have been classified as having a low potential for acid generation and there are no specific ARD controls required. Appropriate freeboard is maintained during operation to provide additional security.

The TMF at Candelaria was designed and built using the downstream construction method, with a low-permeability layer of compacted material at the base. Designed for zero discharge, an efficient water recovery system allows the drainage water to be collected and returned to the processing plant. The tailings are transported to the TMF through pipelines and spigots, and are pumped by pump barges; the clarified tailings water is also collected and recirculated to the processing plant.

A new TMF, Los Diques, located to the west of the open pit and plant, is currently under commissioning and will replace the existing Candelaria tailings facility in 2018. The Environmental Permit for the new site has approved a total available tailings capacity that is greater than that required by the current mine life.

The inactive San Esteban tailings impoundments were acquired in 2009 as part of a land acquisition by Candelaria to gain additional area for waste rock depository development to support the mine expansion. There are two such impoundments: San Esteban 1 (SE1) and San Esteban 2 (SE2). These facilities have never been used for tailings disposal by Candelaria. Candelaria is planning the removal of the SE2 impoundment in 2018 to provide for the expansion of the North Waste Depository, with permanent closure of the SE1 facility commencing in 2018.

Aerial View of Candelaria Los Diques Tailings Management Facility





Eagle Humboldt Mill Tailings Disposal Facility

## Eagle Mine

At Eagle's Humboldt mill site, subaqueous deposition of tailings commenced at the existing Humboldt Tailings Disposal Facility (HTDF) in 2014. The HTDF is a former iron-ore open pit that was also used as a gold-operation tailings storage facility after iron-ore mining ceased in the 1970s. It measures approximately 120 metres in depth and has walls composed of bedrock, except at the north end of the facility, where a bentonite cut-off wall has been constructed.

Eagle's HTDF has been constructed and is operated in compliance with applicable regulations, in particular, the *Natural Resources and Environmental Protection Act*. This requires that the operator manage the HTDF in such a way that reasonably minimizes actual and potential adverse impacts to groundwater and surface water, and that the Company obtains a permit to fill an inland lake so that the surface water quality of Michigan State remains protected.

Eagle's tailings require management for ARD and Humboldt mill's proximity to the former open pit mine made subaqueous disposal an ideal management method. ARD generation

from the tailings is managed through subaqueous deposition by restricting oxygen access to the tailings, thus preventing oxidation. To meet regulatory requirements, Lundin Mining undertook studies to demonstrate that the bedrock pit walls meet the hydraulic conductivity standard and are not a reasonable conduit of groundwater migration. A bentonite wall was constructed to further reduce permeability and ensure negligible groundwater flow. A risk assessment was completed for the facility, with mitigation of risks incorporated into the design, and quality control programs are in place to ensure that design specifications are met.

Added protection is achieved through water management, including maintaining water levels well below surface elevation to ensure water does not overflow the banks into the environment. Water collected in the tailings facility is treated by a multi-stage treatment system prior to discharge. In addition, ongoing inspections and water quality monitoring are conducted to ensure that the facility functions according to design. A contingency plan has been developed to further mitigate any residual risk.

## Neves-Corvo

At Neves-Corvo, the Cerro de Lobo TMF is located 4 kilometres southeast of the processing plants. The TMF is operated in accordance with the EU legislation on extractive waste (Directive 2006/21/EC), the International Commission on Large Dams (ICOLD) and Portuguese national legislation.

The current tailings disposal system at Neves-Corvo has provided safe and reliable tailings storage for many years. Neves-Corvo's tailings contain pyrite and have been characterized as acid-generating. The site's Waste Management Plan is designed to mitigate the risk associated with ARD generation in the tailings.

The tailings embankments at Neves-Corvo were constructed as water-retaining structures to allow subaqueous tailings deposition for ARD management. All tailings embankment lifts use downstream construction methods. As this facility reached capacity for subaqueous tailings disposal in late 2010, innovative thickened tailings technology was implemented. Thickened tailings are tailings that have been further dewatered than conventional slurry, enabling them to be stacked. As there is less water in the thickened tailings, there is reduced ability for them to flow, thereby reducing environmental risk. During 2017, sub-aerial deposition of thickened tailings was continued on top of the existing tailings facility, with the tailings being retained by berms constructed of mine waste rock within the tailings basin. An internal drainage system has been designed to capture seepage water from the TMF. Comprehensive, routine monitoring and management of the tailings deposition process, tailings pore water pressure, and structural and hydraulic stability of the tailings perimeter impoundments all contribute to managing the risk associated with ARD.

Neves-Corvo aims to minimize the volume of tailings to be stored on surface by placing tailings (approximately 50% in 2017) underground as paste backfill and hydraulic backfill to support worked-out areas of the mine.

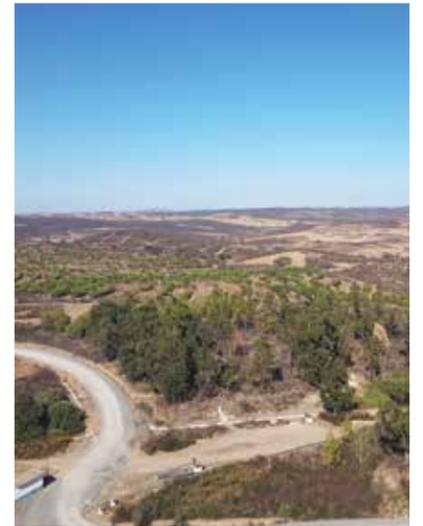
## Zinkgruvan

At Zinkgruvan, the Enemossen TMF is located 4 kilometres south of the mine. The tailings management program at Zinkgruvan is based on the SveMin Dam Safety Guidelines, which incorporate cross-audits by SveMin member companies to ensure that standards are applied. The Engineer of Record conducts safety inspections on an annual basis and prepares quarterly monitoring and performance reports for the Enemossen TMF. Formal safety inspections are conducted every three years by independent, expert consultants on impoundment design to ensure their continuing integrity and to ensure that rigorous programs of ongoing monitoring are in place.

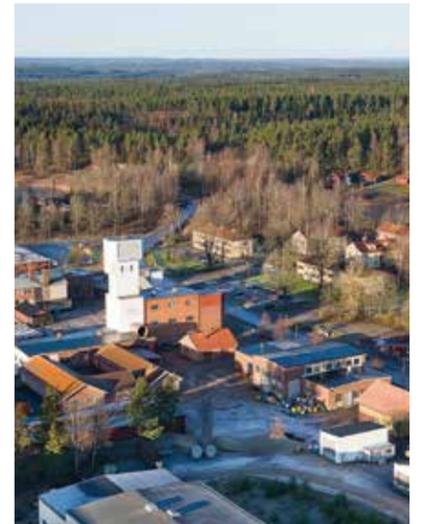
Zinkgruvan's tailings have been found to pose no immediate or long-term risk of acid-generating potential, owing to their low sulphide content and high proportion of calcareous minerals.

The Enemossen tailings management facility reached its capacity in 2017. The mine is operating under a new environmental licence that allowed for the construction of a new tailings facility (Enemossen East) adjacent and downstream to the existing facility. Construction of the new facility began in 2016 and the starter facility was completed in 2017. Enemossen East is permitted to a final elevation of 195.5 metres above mean sea level and will have capacity for 5 million cubic metres of tailings.

Approximately 26% of the tailings produced at Zinkgruvan were used as paste backfill material in the mine in 2017, thus reducing the quantity of tailings to be deposited in the surface tailings facility.



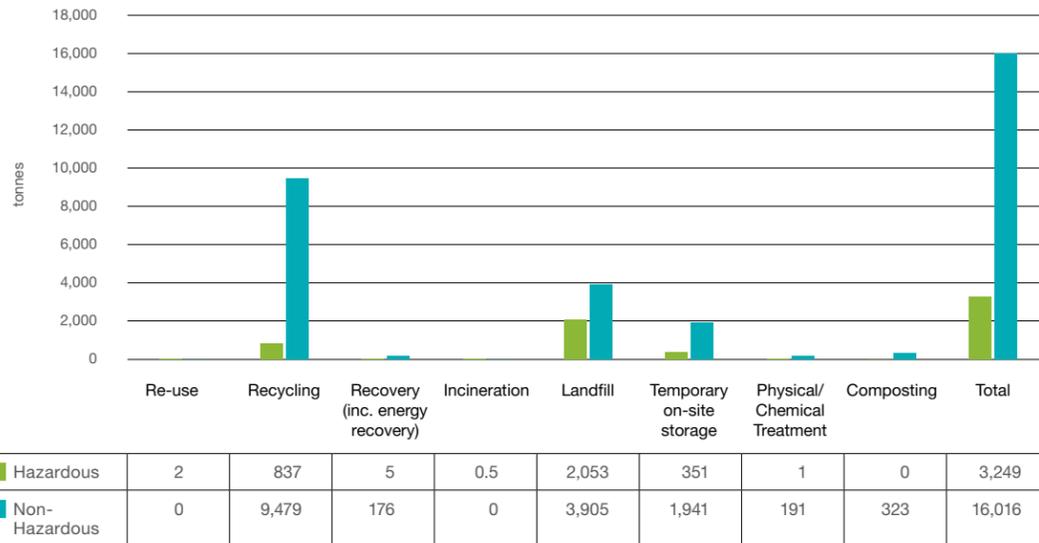
Neves-Corvo Scenery from Cerro de Lobo



Aerial View Zinkgruvan Mine Site



Non-Mineral Waste by Disposal Method 2017



## Non-Mineral Waste

Responsible management of non-mineral waste at our operations is formalized at Lundin Mining through the implementation of comprehensive waste management plans. These plans specify how the different types of waste produced by our activities are to be managed, including identification of opportunities for waste minimization, recycling and re-use. All waste generated by the Company's operations in 2017 was disposed of in accordance with applicable waste regulations and the site waste management plans.

During 2017, just over 19,000 tonnes of non-mineral waste were generated by Lundin Mining, of which 16,000 tonnes, or 83%, were classified as non-hazardous waste. Lundin Mining's waste generation levels have remained broadly consistent over recent years.

Candelaria is our largest non-hazardous waste producer, corresponding to the relatively large size of the operation when compared to our other mines. Eagle Mine records relatively high quantities of materials classified as non-hazardous waste, primarily due to the regulatory requirement to dispose of exploration drill cuttings from known sulphide zones to landfill, together with the waste from its water treatment plant crystallizer. Neves-Corvo and Zinkgruvan generate smaller quantities of non-hazardous waste, consistent with the relative scale of the operations.

A similar trend is observed for hazardous waste generation, with Candelaria being the largest producer, followed by Neves-Corvo and Zinkgruvan. By contrast, Eagle Mine generates a relatively low level of hazardous waste. Hazardous waste generated at our operational sites is generally transported off-site, within country, for treatment and re-use or disposal.

## CLIMATE CHANGE, ENERGY AND EMISSIONS



### Adaptation to Climate Change

Risks and opportunities associated with climate change at our operations have been considered in accordance with the IPCC Special Report on Emission Scenarios 2000 A1B, which considers a balance across all sources of climate change. The potential influence of these changes on our operations and our approach to reducing and/or mitigating these influences are described below. Candelaria is located in Copiapó, the southern part of the Atacama Desert in Chile. The area is arid, with an annual average rainfall of 15 mm/year and an annual average temperature of 16°C. The mine operations' water requirement is supplied from desalinated seawater and treated municipal waste water. The climate change model shows a reduction of 10% in precipitation and an increase of 3°C in temperature over the next 80 years. The changes will produce an increase in evaporation rates, which will require an additional amount of water for the process. The existing water supply capacity and the high water-use efficiency in Candelaria allows the mine to manage this forecast scenario in conjunction with recurrent tracking and evaluation of the water management performance.

The Eagle Mine is located in the Upper Peninsula of northern Michigan, in the United States. The mine and mill area have an annual precipitation average of 775 mm/year and an annual snowfall average of 300 cm/year. According to the climate change model, an increase of 10% in the rates of precipitation and snowfall is expected in the next 80 years. Based on Eagle's estimated life of mine and the design of its water management facilities, no change in the operation is expected.

The Neves-Corvo underground mine is located in a semi-arid region in southern Portugal, with seasonal precipitation patterns averaging 500 mm/year. The climate change model shows that reduced rainfall (from 10% to 20% in the next 80 years) and increased evaporation in the summer months will likely result in a reduction of the fresh water source, the Santa Clara Reservoir. In addition, some modifications in precipitation patterns and rain intensity are forecast. Neves-Corvo continues to intensify its efforts to minimize the consumption of fresh water by maximizing process water recycling and by optimizing water management circuits and balances at the mine.

## RELATED MATERIAL TOPIC: CLIMATE CHANGE

### What is in this topic:

Lundin Mining's data and approach relating to GHG emissions and reductions and adaptation to climate change. While not material, other emissions (air quality, noise) and energy efficiency, are areas of focus for the Company and are also discussed within this section

### Topic boundary:

Impacts are both internal and external, across all operations and of greatest interest to the financial community, governments and regulators, communities, opinion influencers and industry associations

### Disclosures for this topic:

201-2, 302-1, 302-2, 302-3, 302-4, 305-1, 305-2, 305-3, 305-4, 305-5, 305-6, 305-7

The Zinkgruvan Mine is located in south-central Sweden. According to the model, surface temperatures are expected to rise by 3–5°C and precipitation is expected to increase by 20% in the next 80 years. During the summer months, the climate is expected to be warmer and drier, particularly in southern Sweden.

Atacama Desert





## ENERGY AND EMISSIONS

Due to the energy-intensive nature of mining and mineral processing, managing energy consumption and greenhouse gas (GHG) emissions is becoming increasingly important for Lundin Mining as we focus more on our climate-related risks and opportunities. In 2017, as part of our goal to develop strong corporate responsibility practices, we engaged a specialist consultant to conduct a comprehensive assessment of our energy and GHG programs and to complete a financial stress test of carbon policy in regions where we operate. A benchmarking exercise was also undertaken to identify how we might enhance our current programs as we strive to adopt mining industry best practices for the management of energy and GHGs. We also developed a GHG emissions intensity target in 2017, as discussed further in the GHG emissions section of this report. In addition, we are committed to managing other emissions from our operations, including nitrogen oxides and sulfur oxides (NO<sub>x</sub> and SO<sub>x</sub>), particulates, noise and vibration, each of which can be a significant environmental and/or social issue.

All of our operations track upcoming changes to regulations and policies, particularly in relation to energy and GHGs, allowing them to plan for any adjustments required to future energy management. In addition, we initiated an update of our corporate RMMS supporting technical standards in 2017, including the GHG/ Energy Efficiency Technical Standard and associated Guidance document, which will require all operations to address a range of factors, including energy-use efficiency, identification of opportunities to reduce emissions, implementation of emissions controls, assessment of environmental and social air quality impact, monitoring and evaluation of data, and training upon full implementation.

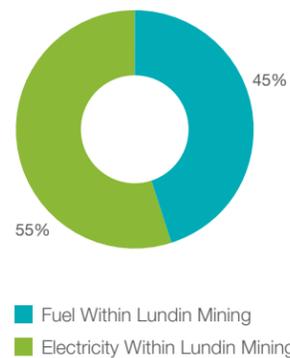
All of our operations demonstrate pro-active management of energy-use efficiency and identification of initiatives for GHG emissions reduction. In Europe,

both our Neves-Corvo and Zinkgruvan operations conduct periodic energy audits and are progressing formal plans for energy efficiency for submission to the authorities. Our Candelaria operation also conducts energy audits and undertakes energy efficiency and GHG reduction awareness workshops for operations staff and contractors. Eagle Mine's operations team has continued to identify opportunities to reduce electricity and fuel usage, where possible, across the mine and processing sites.

## Energy Consumption

At Lundin Mining, we are committed to a structured and transparent approach to our energy-consumption reporting. Data sources include Lundin Mining's internal purchase records and fuel-consumption records reported to us by our contractors. Factors to convert quantities of fuel consumed to energy units are sourced in-country from product data sheets and national publications. Energy from diesel is consumed in the greatest quantities at our operations, followed by propane, bio-pellets, gasoline, gas oil, bio-oil and finally natural gas. Electricity-consumption data is obtained from our suppliers and from on-site meters.

Energy Consumption Within Lundin Mining 2017



## Energy "Within" Lundin Mining

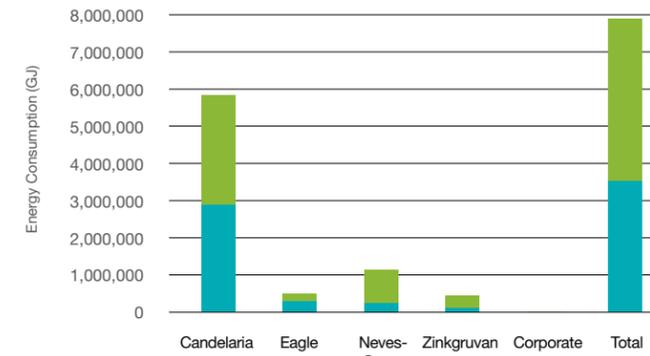
Within Lundin Mining, we define two categories of primary energy consumption:

- Fuel consumed at our operational and corporate sites, both by Lundin Mining and by contractors, for activities associated with our core business, such as transport and heating
- Electricity consumed at our operational and corporate sites, both by Lundin Mining and by contractors

Description	GJ Consumed
Total fuel consumption	3,519,401 GJ (45%)
<ul style="list-style-type: none"> <li>• from non-renewable resources (3,490,797 GJ)</li> <li>• from renewable resources (28,604 GJ)</li> </ul>	
Total electricity consumption	4,388,728 GJ (55%)
<b>Total energy consumption "Within" Lundin Mining</b>	<b>7,908,129 GJ</b>

Typical of the mining sector worldwide, the Company's energy consumption remains a significant input at all of our operational sites. While Lundin Mining's overall electricity consumption has decreased this year, our fuel consumption has increased slightly, resulting in total energy consumption within Lundin Mining of 7,908,129 GJ in 2017 and representing an increase over 2016 levels (7,450,620 GJ). The increase in fuel consumption can be attributed to operational factors at two of our mines: at our Candelaria Complex, diesel consumption has increased associated with the expansion of the north waste rock depository; and at Los Diques, the construction of the new tailings management facility. A smaller increase in diesel and propane consumption occurred at Eagle Mine, associated with the Eagle East expansion.

Energy Consumption Within Lundin Mining by Operation 2017

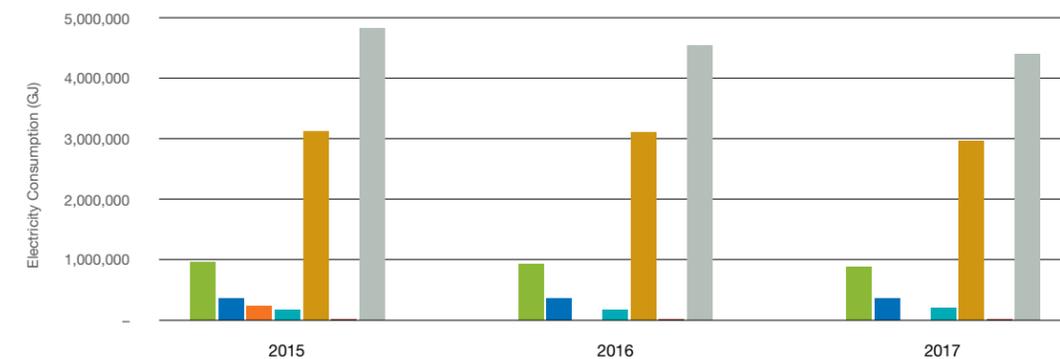


	Candelaria	Eagle	Neves-Corvo	Zinkgruvan	Corporate	Total
Fuel Within Lundin Mining	2,876,599	298,806	239,121	104,202	673	3,519,401
Electricity Within Lundin Mining	2,956,850	195,961	881,528	353,197	1,191	4,388,728

When comparing energy consumption by operation, there are significant differences that can be accounted for by the scale and nature of the operation. Candelaria is our largest operation and also our largest energy consumer, with 5.8 million GJ consumed across its mining complex and port site. Neves-Corvo is our second-largest energy consumer (1.1 million GJ), consistent with its production levels, followed by our two smaller operations at Eagle Mine and Zinkgruvan. Corporate energy use was very low in comparison to our operational sites, as would be expected.

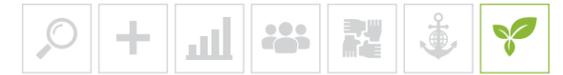
Lundin Mining's total electricity consumption is heavily influenced by the scale of our Candelaria operation, with Candelaria's reductions in consumption in recent years having a positive impact on our overall electricity-consumption levels. Eagle's electricity consumption has increased this year at the mine site due to an increase in electrical power required for the Eagle East expansion and at the mill site due to the harder type of lower-grade ore that is being processed, requiring more energy to crush and mill.

Total Electricity Consumption Within Lundin Mining: 2015 to 2017



	2015	2016	2017
Neves-Corvo	952,167	921,047	881,528
Zinkgruvan	358,834	348,779	353,197
Aguablanca	226,471		
Eagle	172,859	171,692	195,961
Candelaria	3,117,879	3,094,170	2,956,850
Corporate	1,115	1,154	1,191
<b>Total</b>	<b>4,829,324</b>	<b>4,536,842</b>	<b>4,388,728</b>

Notes: 2015 Candelaria data were recalculated in 2016; Lundin Mining divested ownership of Aguablanca, Spain in 2016.

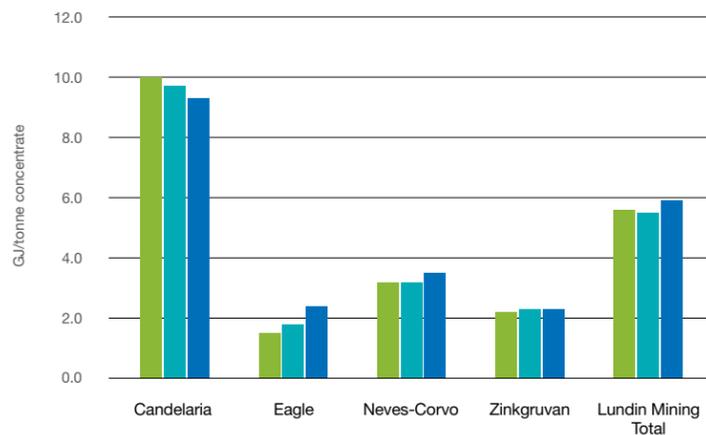


Eagle Tailings' Pipeline Maintenance

Our total energy consumption reflects a range of operational conditions at our sites, particularly in relation to mining and mineral processing throughput. Therefore, we also track annual changes to our “energy intensity,” measuring how much energy (fuel and electricity) we consume per tonne of concentrate produced, which gives an indication of energy management on a site-by-site basis. This metric is also affected by operational factors and open pit operations tend to have higher energy intensity as a result of their associated haulage of ore and waste rock.

Although Candelaria has the highest energy intensity levels of all of the Lundin Mining sites, attributable to the large-scale open pit operation and associated waste rock haulage, along with the lower-grade ore, the operation has achieved a steady reduction in energy intensity over the last three years. Energy intensities at Eagle and Neves-Corvo show slightly increasing trends attributable to operational factors. At Eagle, the increase is primarily attributable to the development of Eagle East (extracting rock that is not ore as part of project development), an increased electricity requirement associated with the Eagle East expansion, and a lower-grade and harder-ore rock being processed. The energy intensity increase at Neves-Corvo is primarily attributable to the development of the Zinc Expansion Project.

Energy Intensity Within Lundin Mining: 2015 to 2017



2015	10.0	1.5	3.2	2.2	5.6
2016	9.7	1.8	3.2	2.3	5.5
2017	9.3	2.4	3.5	2.3	5.9

Notes: Based on recalculated 2015 base year; “Total” includes corporate energy use.

## Energy “Outside” Lundin Mining

As a step toward tracking some emissions associated with our value chain, we collect contractor data for fuel consumed during transport activities that are considered to contribute most significantly to fuel consumption that takes place beyond our project boundaries to support our operations.

Outside Lundin Mining, we define two categories of primary energy consumption:

- Fuel consumed by contractors for concentrate transport and transport of our most significant imported raw materials
- Fuel consumed by contractors for the transport of some wastes off-site and some transport of personnel

These categories comprise “upstream energy consumption” under the [GHG Protocol Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#).

Description	GJ Consumed
Total fuel consumed by contractors for concentrate transport and transport of our most significant imported raw materials (i.e. GHG Protocol Scope 3 Category 4)	306,904 GJ
Total fuel consumed by contractors for transport of wastes and personnel (i.e. GHG Protocol Scope 3 Category 5 & 7)	26,956 GJ
<ul style="list-style-type: none"> <li>• from transport of waste (1,501 GJ)</li> <li>• from personnel transportation (25,456 GJ)</li> </ul>	
<b>Total energy consumption “Outside” Lundin Mining</b>	<b>333,860 GJ</b>

## GHG Emissions

Typical of the mining sector worldwide, our operations use significant quantities of diesel fuel to perform underground and open pit operations. Consumption of electrical power is also essential for our mineral processing operations and is a significant contributor to the GHG emissions for our operations, all of which are linked to their respective national grids for electricity supplies.

At Lundin Mining, we are committed to a structured and transparent approach to our GHG data reporting. Our approach to calculation of GHG emissions is aligned with the Greenhouse Gas Protocol methodologies and the CDP (formerly Carbon Disclosure Project). Our GHG emissions consolidation approach is based on operational control. We focus our efforts on our main emission sources; at present, our GHG emissions accounting is based on fuel, blasting agents and electricity consumption on-site. We developed a more comprehensive approach for capturing data related to fugitive GHG emissions from refrigeration and air-conditioning equipment at our sites during 2017 and undertook a preliminary calculation of fugitive emissions using the GHG Protocol’s Screening Method. Since data capture was not fully complete for all sites and preliminary calculation indicates that these sources contribute well below 2% of our Scope 1 emissions, we have elected not to report these preliminary fugitive GHG emissions this year.

In our calculations, we use the latest Global Warming Potentials given in the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report, as recommended by the GHG Protocol and CDP. Our GHG emissions calculations include carbon dioxide, methane and nitrous oxide, reported as carbon dioxide equivalents (CO<sub>2</sub>e). Where available, emission factors for each fuel type have been obtained in-country, from national publications, otherwise default fuel emission factors have been obtained from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.



Aerial View of Zinc Expansion Project Office Neves-Corvo

## Scope Allocation

GHG Emission Type	GHG Emission Source
Direct (Scope 1)	Fuel and blasting agents consumed on-site by Lundin Mining and contractors for core business activities and in corporate offices
Energy indirect (Scope 2)	Purchased electricity consumed on-site and in corporate offices
Other indirect (Scope 3)	Fuel consumed outside Lundin Mining for concentrate, significant raw material, waste and personnel transport

In common with other companies in the mining sector, operating conditions at our mines change over time. Typically, changes relate to the ore (ore grade, hardness, depth and accessibility), expansion projects (extracting and hauling rock that is not ore), haulage distances for ore and waste rock and on-site construction (new tailings facilities, tailings embankment raises, drainage and water storage projects). These factors all affect fuel and/or electricity consumption to varying degrees. The GHG emissions are also affected to a more limited extent by annual changes in emission factors. The combined effect is annual fluctuation in our emissions.

Biogenic CO<sub>2</sub> emissions in 2017 are not included in our Scope 1 accounting, in accordance with GHG Protocol requirements and are reported separately at 734 tonnes CO<sub>2</sub>.

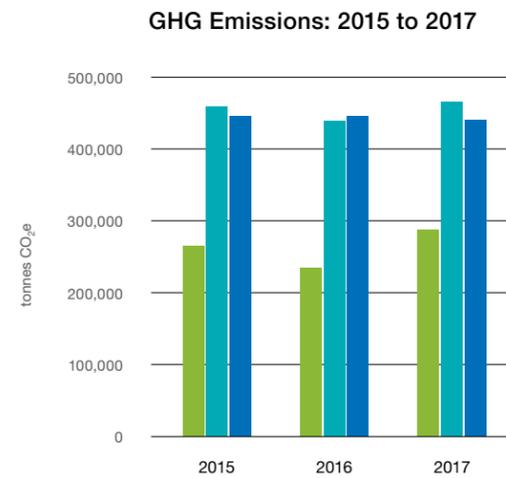
For all of our operations, electricity consumption is the greatest source of GHG emissions. Candelaria's emissions reflect not only the scale of the operation, compared to our other sites, but also the fact that it is an open pit operation with the associated vehicle movements over longer distances for haulage of ore and waste rock.



Candelaria Operations

In accordance with the GHG Protocol Scope 2 Guidance, published in 2015, we report two Scope 2 emissions figures, using the "location-based" and the "market-based" calculation methods. In 2017, emission factors for our location-based emissions calculations were regional or national data obtained in-country, where available, and otherwise were sourced from the International Energy Agency, applied in accordance with the GHG Protocol hierarchy. Emission factors for our market-based calculations, also applied in accordance with the GHG Protocol hierarchy, were sourced from a contractual arrangement between our Swedish operation and its electricity supplier; from residual mix for Portugal; and, since residual-mix data are not currently available for Chile and the US, regional grid average data were applied for Candelaria and Eagle. In our comparisons across operations and for our GHG emissions intensity calculations, we have used the location-based Scope 2 data. For our GHG emissions intensity target, we have used the market-based Scope 2 data.

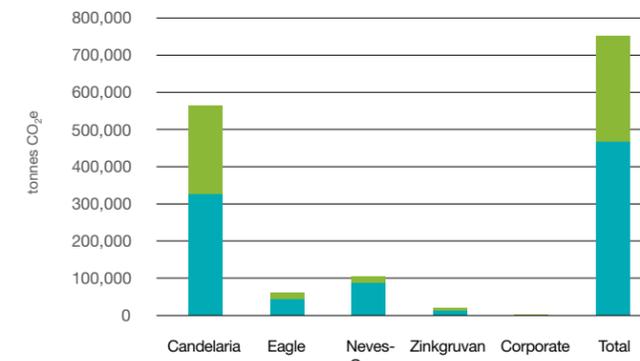
## Scope 1 and Scope 2 GHG Emissions



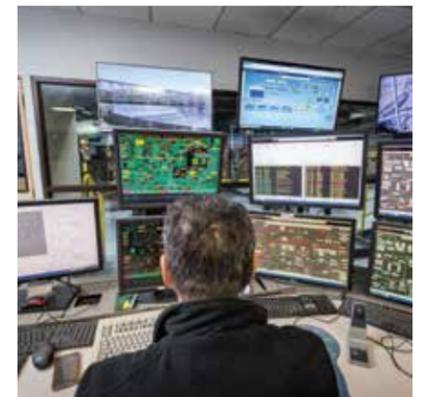
	2015	2016	2017
Scope 1	264,843	234,470	287,225
Scope 2 location-based	458,887	438,620	465,263
Scope 2 market-based	446,272	445,924	440,075

Lundin Mining has defined 2015 as the base year for GHG emissions reporting, primarily because our data were externally assured in that year and we reported both location-based and market-based Scope 2 data. In 2016, we undertook a recalculation of our base year Scope 1 and Scope 2 emissions, to account for the divestment of our operation in Spain in 2016 and to improve on the accuracy of activity data used to determine 2015 Scope 2 GHG emissions at Candelaria in Chile.

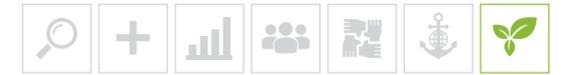
## Scope 1 and Scope 2 GHG Emissions, by Operation 2017



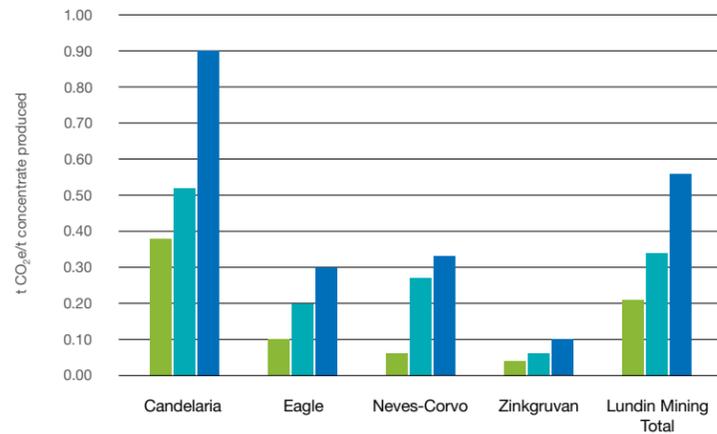
	Candelaria	Eagle	Neves-Corvo	Zinkgruvan	Corporate	Total
Scope 1	238,697	20,381	19,965	8,148	34	287,225
Scope 2 Location-Based	326,075	41,467	85,361	12,313	47	465,263



Candelaria Control Room Concentrator Plant



**Greenhouse Gas Emissions Intensity 2017**



	Candelaria	Eagle	Neves-Corvo	Zinkgruvan	Lundin Mining Total
Scope 1	0.38	0.10	0.06	0.04	0.21
Scope 2 Location-Based	0.52	0.20	0.27	0.06	0.34
Scope 1 + Scope 2	0.90	0.30	0.33	0.10	0.56

The emissions performance of each operation can be assessed by the GHG emissions intensity. This is a measure of the tonnes of carbon dioxide equivalent released per tonne of concentrate produced.

The GHG emissions intensity level at each operation reflects its individual situation, including internal factors, such as the type of mine, mine development activities and type of ore; and external factors, such as the renewable content of the grid electricity supply. The Scope 1 GHG emissions intensity of Candelaria is highest, due to diesel consumption associated with its predominantly open pit mining activity; and its Scope 2 emissions intensity is highest, due to the electricity required to process the relatively low-grade ore in comparison to our other operations. Zinkgruvan's GHG emissions intensity benefits from the favourable location-based emission factor for the electricity supply, while Eagle's emissions are affected by the highest location-based electricity emission

factor out of all of our operations, along with increases in power requirements associated with expansion of the mine.

In 2017, Lundin Mining proposed a GHG emissions intensity target to reduce Scope 1 and Scope 2 (market-based) emissions by 1% between 2015 and 2018. By the end of 2017, the desired downward trend towards our proposed 2018 target was not observed, primarily because of increased fuel use associated with longer waste rock haulage distances and increased construction equipment activity for the construction of a new tailings storage facility, Los Diques, at our largest mine, Candelaria. During the latter half of 2017, Lundin Mining undertook a GHG emissions and Energy Efficiency Benchmarking program at all of our operations to review management practices and initiatives supporting achievement of the proposed emissions reduction target. This work will be continued at all operations to identify additional initiatives and activities to address this area of focus.



Zinkgruvan Lake Åmmelången

### Scope 3 Emissions

As a step toward tracking some emissions associated with our value chain, we calculate Scope 3 emissions from fuel used by contractors for transport of our concentrate product, for the import of some of our main raw materials, transport of some of our wastes and some personnel transport off-site. The emissions are determined based upon fuel-consumption data supplied to us by contractors.

Our calculated Scope 3 emissions were 24,432 tonnes CO<sub>2</sub>e in 2017, of which 21,042 tonnes CO<sub>2</sub>e was attributed to fuel used by contractors for concentrate product transport to port.

### GHG Emission Reduction and Energy Conservation Measures

Our 2017 assessment identified that the GHG reduction strategies that have been implemented, or are being considered, at each site form a solid foundation for a robust energy and GHG reduction program. Additional potential approaches were identified and action plans were proposed as a means of implementing such initiatives in the future. Our operations continued to focus on identifying opportunities to improve energy efficiency and reduce GHG emissions. Our Zinkgruvan site has pro-actively switched to a 100% renewable-energy source for its electricity supply, supported contractually

by Guarantees of Origin. Systems to enhance data collection around our energy and GHG emission reduction initiatives require further development, as currently the benefits of a number of implemented initiatives are not being quantified.

Our reductions in energy consumption are calculated based on an estimate of the annual saving of fuel or electricity to be gained through each energy reduction initiative that was fully implemented by the end of 2017. The methodologies for estimating the energy savings vary across our sites, depending on the nature of the initiatives. GHG emissions reductions are calculated based on the estimated annual saving of fuel (Scope 1) or electricity (Scope 2 location-based). In selected cases, decisions have been made to implement an initiative without immediate transparent estimates of the savings – in these cases, and while savings have not been immediately quantified, emissions reductions are present.

During 2017, 29 energy and GHG emissions reduction initiatives were assessed and/or implemented across our operations. Energy reduction initiatives that were fully implemented at the end of the reporting period and for which energy-saving data were available, resulted in estimated energy savings of 12,306 GJ and Scope 1 GHG emission savings of 733 tonnes CO<sub>2</sub>e in 2017.

# ENVIRONMENTAL MANAGEMENT



Key aspects of our energy and GHG reduction programs and initiatives under investigation or implementation in 2017, are described below for each operation.

Location	Energy and GHG Reduction Programs
<b>Candelaria</b>	<ul style="list-style-type: none"> <li>Specialized internal technical team, supported by specialized consultants, to progress the identification and implementation of energy efficiency opportunities</li> <li>Early-stage energy / GHG emission reduction assessment projects continued, including potential for re-use of wood and residual oil and for installation of solar heating for dressing rooms</li> <li>Continued implementation of an energy / GHG emission reduction project comprising gradual replacement of lighting above and below ground</li> </ul>
<b>Eagle</b>	<ul style="list-style-type: none"> <li>Retention of a Continuous Improvement Lead and a Continuous Improvement Steering Committee to evaluate and implement selected staff-provided recommendations, including energy reduction initiatives</li> <li>Implementation of energy-saving projects completed in 2017 across the mine and mill sites, including energy efficient lighting, modifications to improve efficiency of ceiling fans, modifications to the concentrate drying system, and improved ore haulage loading efficiency to reduce the number of vehicle trips</li> </ul>
<b>Neves-Corvo</b>	<ul style="list-style-type: none"> <li>Retention of a Continuous Improvement Director to evaluate and implement energy reduction initiatives</li> <li>Early-stage energy / GHG emission reduction assessment projects continued, including changes to lighting above and below ground and a power cable retrofit in the processing plant</li> <li>Implementation of energy / GHG emission reduction projects continued, including several retrofit projects in the processing plant to improve efficiency</li> </ul>
<b>Zinkgruvan</b>	<ul style="list-style-type: none"> <li>Implementation of energy / GHG emission reduction assessment projects commenced, including regulation of heating in mine shafts</li> <li>Implementation of energy-saving projects completed in 2017 included changes to lighting above and below ground, installation of lighting timers / movement detectors, roof insulation and improved sealing of buildings</li> <li>Switch on 1 January 2017 to electricity from a guaranteed 100% renewable source</li> </ul>
<b>Corporate offices</b>	<ul style="list-style-type: none"> <li>Toronto office participates in the property management company's "ForeverGreen Tenant Engagement program," one of the core components of which is energy efficiency and carbon emission reduction</li> <li>Haywards Heath office donated printer ink cartridges to a charity recycling scheme, with confirmation in August that items processed had resulted in 90 trees being planted on Lundin Mining's behalf</li> </ul>

## Air Emissions

Eagle and Neves-Corvo are the only Lundin Mining sites with regulated nitrogen and sulphur oxides (NO<sub>x</sub>/SO<sub>x</sub>) air emissions. In accordance with Eagle Mine's Permit to Install (50-06B), they comply with permit requirements by adhering to operational use restrictions on its stationary engines, such as operating the back-up generator at the mine site for only a maximum 500 hours per 12-month period. At Neves-Corvo, samples from two boilers are analysed for a suite of parameters; in 2017 all samples were in full compliance with permitted limits.

Management of particulate emissions by mining operations is particularly important for the surrounding communities and the environment. All of our operations have controls and procedures in place to manage emissions of particulates both within and beyond our project boundaries, with associated monitoring to allow the effectiveness of controls to be routinely assessed and adjusted, if required. Proven techniques that are typical at mining operations worldwide

are employed at our operations. These include application of water on unpaved roads and operations areas, tailings embankments, open pit working faces and following blasting; sprinkler systems at ore passes, loading bays and stockpile areas; addition of binding agents; dust capture systems and air filters in indoor areas; wheel washes and sweeping of paved areas; and covering of concentrate for transport. Documented procedures and associated training of personnel as to the circumstances under which action is required are critical to the effectiveness of these measures.

Particulate emissions are regulated at all of our sites, either at the emission source, in the receiving environment in ambient air, or as deposited particulates. In addition to compliance monitoring at all of our sites, particulate matter is routinely measured to assess any impact from Neves-Corvo's operations in the neighbouring villages of Graça, Corvo and Neves. Candelaria monitors particulates in the communities of Tierra Amarilla, Caldera and Nantoco for the authorities at official "Community Status" monitoring stations, the data representing the cumulative effect of a range of sources of particulates in the region, including from other mines and a smelter.

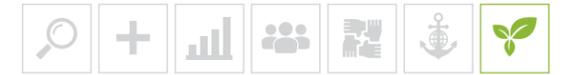
In 2017, all of our operating mines were in full compliance, with particulate emissions measured below permitted limits. In recognition of the fact that measurements recorded at the off-site "Community Status" stations are contributed to by multiple local non-Candelaria activities, occasional exceedances of limits recorded at these locations are not considered by the authorities to be non-compliances.

## Noise and Vibration Emissions

Lundin Mining continued to manage noise and vibration emissions from our sites throughout 2017 with the primary aim of minimizing disturbance to local communities. Noise mitigation works undertaken in recent years at Neves-Corvo and Zinkgruvan have reduced emissions and improved compliance, with further improvement works conducted at Neves-Corvo in 2017. With the exception of two exceedances (noise "disturbance" criteria on one occasion at Neves-Corvo and permitted noise limit on one night-time occasion at Zinkgruvan), all sites were in full compliance with regulated limits throughout 2017. Lundin Mining is advancing the development of updated noise and vibration guidance, in alignment with the newly introduced RMMS.

Atacama Region





Zinkgruvan Mine Lake Trysjön

## BIODIVERSITY AND LAND MANAGEMENT



Lundin Mining considers its role in biodiversity stewardship to be a fundamental sustainability responsibility. Lundin Mining contributes to biodiversity management through the proper assessment of biodiversity conditions, minimization of habitat degradation and contributions to habitat restoration during the life of mine cycle.

Lundin Mining's Group Procedure for Biodiversity Management was issued in 2015 and, since that time, all four of our operational sites have progressed the alignment of their existing Biodiversity Management Plans to the Group Procedure, including compliance with the requirement to prepare and update their Biodiversity Action Plans on an annual basis. Upon full implementation of the newly introduced RMMS, this program will be expanded to include further improvements and updates. As part of this process, existing plans are being upgraded to require a more comprehensive understanding of ecological relationships within the various

ecosystems, resulting in enhanced monitoring programs and allowing our operations to more effectively plan and manage a wide range of habitat interventions and improvements.

Lundin Mining's objectives for Biodiversity Management are to:

- Document existing biodiversity conditions in areas undergoing exploration programs
- Consider biodiversity-related information and management systems during due diligence assessment programs

- Undertake comprehensive biodiversity baseline studies to document conditions prior to the development of new mines, or significant expansion beyond a current mine's footprint
- Monitor biodiversity management programs and promotion of sustainable management of living natural resources through the fostering of partnerships that seek to integrate conservation needs and development priorities
- Consider opportunities for implementing actions to achieve similar biodiversity values after closure as those evidenced prior to the site's development, where possible (the no-net-loss of biodiversity values approach)

Neves-Corvo's lands in Portugal lie adjacent to the Oeiras River, a High Biodiversity Value Area integrated in the Guadiana Valley Natural Park as part of the European Natura 2000 network. Conservation of the Oeiras River habitat is one of the highest environmental priorities for Neves-Corvo. Part of our Zinkgruvan operational area lies within the Knalla Nature Reserve, a popular area for hiking. A minor part of Lake Viksjön lies within this Nature Reserve and our Zinkgruvan operation plays an important role in managing the water level of this lake while maintaining the flow rate in a nearby creek within a valley of high natural value. There are no protected or High Biodiversity Value Areas within or adjacent to our Candelaria or Eagle sites.

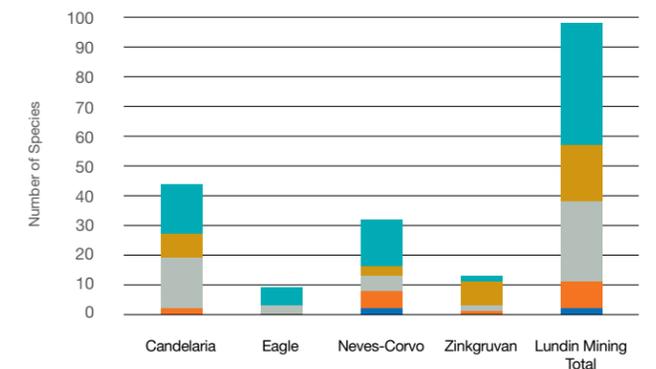
### Species of Interest

Habitats hosting two critically endangered and nine endangered species from the International Union for Conservation of Nature (IUCN) Red List and national conservation lists are located in countries where Lundin Mining has operations: Chile (Candelaria), Sweden (Zinkgruvan) and Portugal (Neves-Corvo). The assessment and, where present, the monitoring and protection of these species is included in the relevant Biodiversity Management Plans developed and implemented by each site.

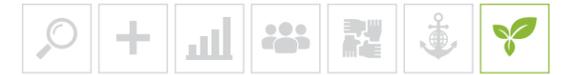


Black Stork at Neves-Corvo (Cegonha Preta)

### IUCN Red List and National Conservation List Species with Habitats in Areas Where Lundin Mining Has Operations



	Candelaria	Eagle	Neves-Corvo	Zinkgruvan	Lundin Mining Total
Least Concern	17	6	16	2	41
Near Threatened	8	0	3	8	19
Vulnerable	17	3	5	2	27
Endangered	2	0	6	1	9
Critically Endangered	0	0	2	0	2



Neves-Corvo Oeiras River

### Water Discharge and Aquatic Biodiversity

A high priority for all of Lundin Mining's operations is to minimize effects on receiving water bodies and related habitats. This is accomplished through the integration of robust facilities and comprehensive procedures for the management of all discharges with comprehensive monitoring for timely detection of any changes to aquatic biodiversity that might be attributed to our activities.

In 2017, no water bodies or related habitats were significantly affected by water or run-off discharges at Candelaria (ocean discharge) or Eagle, while Neves-Corvo and Zinkgruvan have continued to monitor and manage effects that have been observed in the past. Coastal marine monitoring by Candelaria has continued to demonstrate that no negative impacts upon biodiversity have been recorded since the mine's port and desalination plant operations commenced. At Eagle's mill site, the receiving water body from the water treatment plant discharge is a wetland adjacent to the Escanaba River, which eventually discharges into Lake Michigan. Though not confirmed, the discharge is estimated to account for at least 5% of the annual average water volume in the wetland. The wetland is not protected, does not contain any protected or endangered species and does not have significant habitats or a high biodiversity value. Eagle's permit limits the total volume of water that can be discharged to this wetland, so as not to exceed

recommended water levels for the health of the vegetation. At Eagle's mine site, Lake Superior is the final receiving water body for the treated mine site water following its injection to groundwater. Monitoring is routinely undertaken and will be continued throughout operations, closure and post-closure.

Neves-Corvo's strategy for the conservation of biodiversity is to preserve areas with no impact; improve conditions in areas with low impact; improve conditions in areas that have experienced high impact, after removal of the cause; and in areas where impacts cannot be avoided, create new habitats or improve existing habitats in areas without impact. A localized and temporary past impact on biodiversity, resulting from Neves-Corvo's previous water discharge into the Oeiras River, continues to be monitored, as has been previously reported in Lundin Mining Sustainability Reports. Treatment and compliance with legal requirements has been achieved. Although species diversity in a section of the river remains affected, the effect is reversible and conditions are noted to be improving.

To support restoration, Neves-Corvo has invested in a comprehensive upgrade of its water management system in recent years, with a dual focus on improving the quality of the discharge to the Oeiras River and increasing on-site water storage capacity to allow greater control over the amount of water discharged. Crucially, the improved system allows discharge to be suspended during times when there is low or no flow in the river, as required by permits. Biomonitoring in the Oeiras River continued in 2017, in partnership with external professionals from the Coimbra, Aveiro, Porto and Lisbon universities.

Additional biodiversity-related initiatives undertaken by Neves-Corvo include the development of a partnership with the authority of Natural Park of the Guadiana Valley (PNVG) with the objective of managing riparian habitats in the Vascão River to assist in the preservation of the threatened fish species Saramugo (*Anaocypris hispanica*); this river is a tributary of the Guadiana River and is classified as a Site of Community Interest and as a Wetland of International Importance (Ramsar Convention). This work was successfully continued throughout 2017.

At our Zinkgruvan mine, discharge from our operation enters the Ekershyttbäcken Creek, a 4-kilometre-long creek that has received water from the mine for more than 100 years. In addition, since the operation's tailings management facility and clarification pond lie within the catchment of Lake Hemsjön and Björnbäcken Creek, part of the Hättorpsån water system where the quality of the aquatic environment is protected by regional water management programs, a series of water quality and ecotoxicology studies were commenced in 2015 to assess the potential, if any, for long-term risks to the aquatic community. The studies were in process in 2017 and will be reported once completed.

A summary of some of the more significant biodiversity management actions implemented or continued and our engagement activities for biodiversity conservation, are summarized below by site.

Operation	Biodiversity Management and Monitoring Activities
<b>Candelaria</b>	<ul style="list-style-type: none"> <li>• Extensive biodiversity monitoring programs periodically conducted to assess desert flora and fauna in the region of the mine complex</li> <li>• Coastal marine monitoring program conducted to assess potential impacts upon aquatic life and fish resources from the desalination plant's seawater discharge and from the port facilities and concentrate shipment</li> <li>• Relocation of species of cactus and reptiles from the footprint of the new tailings facility and waste rock expansion projects for the purpose of protection</li> </ul>
<b>Eagle</b>	<ul style="list-style-type: none"> <li>• Annual flora, fauna, aquatics surveys and threatened and endangered species assessments at the mine and mill sites and surrounding areas; comparison of results to baseline data to assess any changes that could be the result of mining operations</li> <li>• Rigorous management of discharges to ensure the downstream water environment and the ultimate receiving water bodies for the discharges from the mill site (Lake Michigan) and the mine site (Lake Superior) are not adversely impacted</li> </ul>
<b>Neves-Corvo</b>	<ul style="list-style-type: none"> <li>• Routine monitoring of flora and fauna (birds, mammals, reptiles, amphibians), air and water quality</li> <li>• Soil remediation and biomonitoring initiatives (including aquatic macroinvertebrates, fish and shellfish) in partnership with the University of Lisbon and Coimbra University</li> <li>• Working with the League for the Protection of Nature, contributing to the conservation of three endangered species of bird prioritized by the European Union: Bustard, Lesser Kestrel and Little Bustard</li> <li>• Working with Institute for the Conservation of Nature and Biodiversity / PNVG to support several projects and management planning for the Guadiana Valley</li> <li>• Implementation of an Emergency Response Plan developed in collaboration with Évora University and PNVG to safeguard the Red Listed mollusc species <i>Unio tumidiformis</i> in the Oeiras River; recovery of specimens at risk due to drought</li> <li>• Further studies to evaluate the feasibility of applying Best Available Techniques in the treatment / management of water discharged to the Oeiras River</li> </ul>
<b>Zinkgruvan</b>	<ul style="list-style-type: none"> <li>• Development of species inventories for areas adjacent to operations for classification in terms of natural values and biodiversity</li> <li>• Monitoring of the success of the relocation of a Swedish protected orchid (<i>Dactylorhiza incarnata</i>) to a nearby sheltered area, to protect flora species in an area of high natural value adjacent to the footprint of the new tailings facility</li> <li>• Commitment to transferring water from Lake Viksjön to maintain the flow rate in a creek that flows through a valley of high natural value and is at risk of reduced flow rate due to the expansion of the tailings facility</li> <li>• Nearby lakes are of high cultural value and, as such, the operation considers it to be a key priority to ensure these lakes are not adversely impacted</li> </ul>



Aerial View of Los Diques Tailings Management Facility, Candelaria

### Land Management

At the beginning of 2017, Lundin Mining was managing 5,527 hectares of land that we own or lease that are occupied by our mining and processing activities and associated infrastructure. At the close of 2017, Lundin Mining was managing 5,706 hectares. The majority of land managed by Lundin Mining is located at our Candelaria operation (4,865 hectares).

Newly disturbed land at Candelaria this year resulted from the expansion of a waste rock pile, along with the construction of the new Los Diques tailings management facility. There was also a small area of land-take at Neves-Corvo used for the construction of a new lagoon as part of the site's continuing work to improve its water treatment facilities. The Eagle operation also increased its surface area footprint

for a proposed new river discharge point for the mill site. While the principle of progressive reclamation is important to Lundin Mining, and is undertaken whenever possible and practical, expansion project activities occurring within our approved mine footprints reduced opportunities to advance land restoration activities in 2017, although several are planned for 2018.

### Land Management (Hectares)

	Candelaria	Eagle	Neves-Corvo	Zinkgruvan	Total
Total land disturbed and not yet rehabilitated (Opening Balance)	4,688	55	603	181	5,527
Total amount of land newly disturbed within the reporting period	177	0.5	2	0	179
Total amount of land newly rehabilitated within the reporting period to the agreed-upon end use	0	0	0	0	0
Total land disturbed and not yet rehabilitated (Closing Balance)	4,865	55	605	181	5,706

## CASE STUDY

# Neves-Corvo Mine

## NEVES-CORVO ECOLOGICAL HABITAT SUPPORT AND PROTECTION – FEBRUARY 2017



Neves-Corvo has established a strong reputation for working collaboratively to support biodiversity protection and management both within and beyond the area of the mine's operation in southwest Portugal. Continuing these traditions of biodiversity management and protection, Neves-Corvo frequently works in partnership with local communities, farmers, government representatives and universities on various water- and biodiversity-related programs, in accordance with the National Strategy for the Conservation of Nature and Biodiversity (ENCNB). The ENCNB constitutes the overarching strategic document for nature conservation and biodiversity in Portugal with the objective to reduce biodiversity and ecosystem loss. This strategy also provided the foundation for the actions developed to support the conservation of aquatic communities (ichthyofauna) within the Management Plan of the Guadiana Valley

Natural Park (PNVG), an initiative for which Neves-Corvo provided leadership and support: 1) Vascão River Wetland Day Commemoration, and 2) Protection efforts for *Unio tumidiformis* in the Oeiras River.

In February 2017, in partnership with ICNF (Instituto da Conservação da Natureza e das Florestas) / PNVG Neves-Corvo participated in the National Wetland Day Commemoration held at the Vascão River. This included the planting of more than 100 trees along the banks of the Vascão River to help protect the banks from elevated temperatures and to support and rehabilitate habitat for the protection and preservation of *Saramugo*, a fish species that is classified as "Endangered" (Globally) on the IUCN Red List of Threatened Species™ and "Critically Endangered" (Portugal).

In 2017, numerous reports identified that Portugal faced the worst drought in more than 20 years. More than 80% of the country was officially classified as enduring "severe" or "extreme" drought. In the Neves-Corvo region, as a result of this drought period, several sites of the

nearby Oeiras River experienced reduced water flows, negatively impacting *Unio tumidiformis*, a species of bivalve with a designated conservation status of "Vulnerable" on the IUCN Red List of Threatened Species. Neves-Corvo worked in partnership with Évora University biologists and the ICNF / PNVG to create a protocol for recovering and transferring the bivalves to areas with greater water flow. This effort, conducted according to the ENCNB under the Business and Biodiversity Initiative objective of "Stopping the Loss of Biodiversity," successfully mitigated the potentially negative impact on the bivalve population that could result from lowered water levels. Concurrently, an added benefit was the removal and elimination of invasive species.





## RELATED MATERIAL TOPIC: RECLAMATION AND CLOSURE

### What is in this topic:

Lundin Mining's approach to mine closure planning, long-term water and land stewardship, social frameworks for closure and financial provisions for closure

### Topic boundary:

Impacts are both internal and external, across all operations and of greatest interest to governments and regulators, communities, opinion influencers, employees and industry associations

### Disclosures for this topic: MM10

## MINE CLOSURE



Lundin Mining takes a responsible and integrated approach to mine closure planning, with the principal aim being to design, develop and operate our facilities to minimize their overall social and environmental impact and take into consideration their eventual closure. All of Lundin Mining's operational and closed sites have approved mine closure plans (MCPs), as required by Lundin Mining's Group Procedure for Mine Closure Planning. The MCPs are developed to a level of detail that reflects the stage of each mine's lifecycle, and they are updated at least every three years or when required due to operational changes.

Our 2015 Group Procedure for Mine Closure Planning is being updated and will be formalized as a standard in 2018. The procedure requires use of a risk-based approach to closure planning and definition of site-specific closure objectives and completion criteria for each operation. Our closure plans are required to address legal obligations and corporate commitments, financial provision, community interests, the environment and employees' expectations once the mine is closed. In general, the updated Group Procedure involves the definition of post-closure land uses, public safety, chemical and geotechnical stability, no net loss of biodiversity, post-closure monitoring and

aftercare, post-closure land ownership and tenure, temporary closure and unplanned premature closure. Stakeholder participation is integral to our closure planning process.

Progressive restoration forms a key part of our closure planning process, being integrated into the operational mining plan, where feasible. In 2017, there was no on-site land restoration carried out at our active mine sites because of either active mining or expansion within the approved development areas. Lundin Mining carried out restoration-related activities at other sites, as detailed in the following paragraphs.

Lundin Mining has implemented financial provisions for mine closure in accordance with legal requirements and the Company's commitments and standards. The closure-related financial provisioning and accrual details are provided in Lundin Mining's latest Annual Information Form (<http://www.lundinmining.com/i/pdf/2017-AIF.pdf>).

Lundin Mining actively managed the former Storliden closed mine for the entire period of 2017 and managed the successfully restored Galmoy Mine for only the first three months of 2017, prior to divestment. At Lundin Mining, our closure activities are aligned with our commitment to achieve post-closure biodiversity values, wherever possible, that strive to be equivalent to pre-operations in our habitat restoration programs.

The Storliden Mine in northern Sweden was closed in 2008, with disposal of all waste rock underground, sealing of the access drift and removal of surface structures. Following investigations in the last quarter of 2013, Lundin Mining committed to the design and implementation of improvements to surface water management at the site, with additional revegetation of the closed industrial area. Effective communication and engagement with the local stakeholders has been implemented and maintained to ensure transparency during the process. Following the above-mentioned improvements implemented during 2014, additional removal of soil from the former mine access road was undertaken in 2015 and 2017. Environmental monitoring to assess the effectiveness of remedial activities performed to date at Storliden will continue through to 2018.

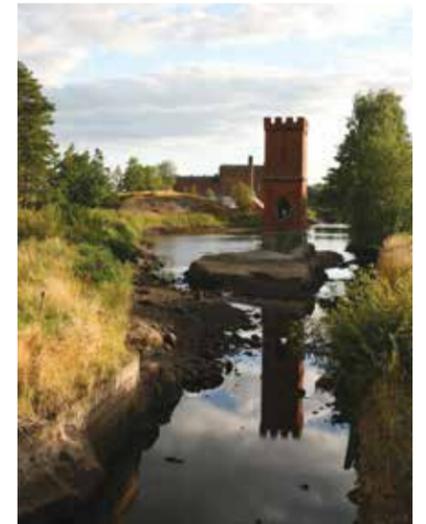
In addition to the mine sites undergoing active closure, Zinkgruvan monitors the nearby Åmmeberg historical operating site, where Vieille Montagne processed Zinkgruvan ore from the 1850s until the late 1970s. The area was reclaimed by Vieille Montagne (the former operator at Åmmeberg) during the 1980s and currently has various uses, including a golf course and a marina. Lundin Mining

is working with local regulatory authorities and local communities to assess site environmental conditions and to identify and evaluate ecological and potential human health risks associated with the historical mining activities of others. The outcome of the above-noted studies will be used to advance possible additional remediation measures at Åmmeberg.

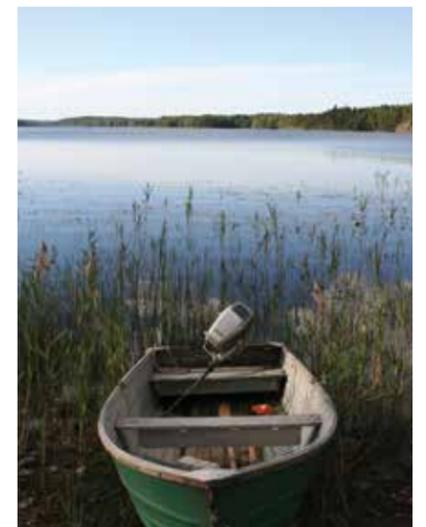
### Social Aspects of Mine Closure Planning

Mine closure plans that incorporate both physical rehabilitation and socio-economic considerations are an integral part of the project life cycle. Mines should be designed so that future public health and safety is not compromised, after-use of the site is beneficial to affected communities, and adverse socio-economic impacts are minimized while socio-economic benefits are maximized.

At Eagle, our site closest to closure, all social programs have been developed with closure in mind. In preparation for closure, mine representatives provide annual updates to local government to explain tax structure changes and provide budget recommendations related to closure. In 2018, Eagle intends to develop employee assistance plans and hold a closure planning workshop.



Zinkgruvan Åmmeberg Canal



Zinkgruvan Lake Åmmelången



# APPENDIX A

## KEY PERFORMANCE DATA

### Metal Production Statistics (contained metal)

#### Copper (tonnes)

	2017	2016	2015
Candelaria (80%)	147,086	133,274	144,832
Eagle	21,302	23,417	24,331
Neves-Corvo	33,624	46,557	55,831
Zinkgruvan	997	1,906	2,044
<b>Total</b>	<b>202,989</b>	<b>205,154</b>	<b>227,038</b>

#### Nickel (tonnes)

	2017	2016	2015
Eagle	22,081	24,114	27,167
<b>Total</b>	<b>22,081</b>	<b>24,114</b>	<b>34,380</b>

#### Zinc (tonnes)

	2017	2016	2015
Neves-Corvo	71,356	69,527	61,921
Zinkgruvan	77,963	78,523	83,451
<b>Total</b>	<b>149,319</b>	<b>148,050</b>	<b>145,372</b>

#### Gold (ounces)

	2017	2016	2015
Candelaria (80%)	83	78	82
<b>Total</b>	<b>83</b>	<b>78</b>	<b>82</b>

#### Lead (tonnes)

	2017	2016	2015
Neves-Corvo	5,164	4,126	3,077
Zinkgruvan	28,324	31,661	34,120
<b>Total</b>	<b>33,488</b>	<b>37,803</b>	<b>37,197</b>

#### Silver (ounces)

	2017	2016	2015
Candelaria (80%)	1,457	1,332	1,499
Eagle	200	223	210
Neves-Corvo	1,292	1,242	1,329
Zinkgruvan	2,361	2,159	2,542
<b>Total</b>	<b>5,310</b>	<b>4,956</b>	<b>5,580</b>

## STAFFING SUMMARY

### Candelaria

	Male	Female	Total
Number of Employees	1,469	154	1,623
Permanent Employees	1,397	147	1,544
Temporary Employees	70	6	76
Full-time Employees	1,399	142	1,541
Part-time Employees	70	12	82
Other Workers*	3,362	333	3,695
Non-nationals/Expatriates	2	1	3
Employee Turnover (%)			6
Non-Managerial Workforce covered by collective bargaining agreements (%)			83

### Neves-Corvo

	Male	Female	Total
Number of Employees	1,089	125	1,214
Permanent Employees	856	100	956
Temporary Employees	233	25	258
Full-time Employees	1,089	125	1,214
Part-time Employees	0	0	0
Other Workers*	924	87	1,011
Non-nationals/Expatriates	18	4	22
Employee Turnover (%)			4
Non-Managerial Workforce covered by collective bargaining agreements (%)			100

### Eagle

	Male	Female	Total
Number of Employees	164	31	195
Permanent Employees	164	31	195
Temporary Employees	0	0	0
Full-time Employees	164	31	195
Part-time Employees	0	0	0
Other Workers*	242	25	267
Non-nationals/Expatriates	0	0	5
Employee Turnover (%)			7
Non-Managerial Workforce covered by collective bargaining agreements (%)			0

### Zinkgruvan

	Male	Female	Total
Number of Employees	330	70	400
Permanent Employees	320	67	387
Temporary Employees	9	3	12
Full-time Employees	325	69	394
Part-time Employees	5	1	6
Other Workers*	72	0	72
Non-nationals/Expatriates	0	0	0
Employee Turnover (%)			6
Non-Managerial Workforce covered by collective bargaining agreements (%)			100



\*Workers who are not employees (include those whose work, or workplace, is controlled by the organization)

Data have been compiled from the annual head count at each operation and head office in Lundin Mining Corporation. Data for employee turnover and Non-Managerial Workforce covered by collective bargaining agreements are only reported as totals.

# APPENDIX A

## STAFFING SUMMARY

Explanation	Corporate Offices			Corporate Offices		
	Male	Female	Total	Male	Female	Total
Total Number of Employees	19	5	24	44	35	79
Permanent Employees	19	5	24	44	35	79
Temporary Employees	0	0	0	0	0	0
Full-time Employees	19	5	24	44	35	79
Part-time Employees	0	0	0	0	0	0
Other Workers*	24	0	24	3	0	3
Non-nationals/Expatriates	0	0	0	15	8	23
Employee Turnover (%)			0			10
Non-Managerial Workforce covered by collective bargaining agreements (%)			0			0

\*Workers who are not employees (include those whose work, or workplace, is controlled by the organization)

Data have been compiled from the annual head count at each operation and head office in Lundin Mining Corporation. Data for employee turnover and Non-Managerial Workforce covered by collective bargaining agreements are only reported as totals.

## HEALTH AND SAFETY STATISTICS

Explanation	Employees		Contractors*	
	Male	Female	Male	Female
<b>Candelaria</b>				
Types of Injury	Recordable	Recordable	Recordable	Recordable
Number of Injuries	4	1	11	0
Injury Rate	0.07	0.02	0.20	0.00
Occupational Disease Rate	0.02	0.00	NR	NR
Lost Day Rate (SR)	5.72	0.02	5.96	0
Work-Related Fatalities	0	0	0	0
<b>Eagle</b>				
Types of Injury	Recordable	Recordable	Recordable	Recordable
Number of Injuries	3	0	3	1
Injury Rate	0.61	0.00	0.61	0.20
Occupational Disease Rate	0.00	0.00	0.00	0.00
Lost Day Rate (SR)	0.00	0.00	0.00	0.00
Work-Related Fatalities	0	0	0	0

## HEALTH AND SAFETY STATISTICS

Explanation	Employees		Contractors*	
	Male	Female	Male	Female
<b>Neves-Corvo</b>				
Types of Injury	Recordable	Recordable	Recordable	Recordable
Number of Injuries	10	1	6	0
Injury Rate	0.53	0.05	0.31	0.00
Occupational Disease Rate	0.16	0.00	NR	NR
Lost Day Rate (SR)	18.40	0.00	8.09	0.00
Work-Related Fatalities	0	0	0	0
<b>Zinkgruvan</b>				
Types of Injury	Recordable	Recordable	Recordable	Recordable
Number of Injuries	3	0	3	0
Injury Rate	0.70	0.00	0.70	0.00
Occupational Disease Rate	NR	NR	NR	NR
Lost Day Rate (SR)	0.00	0.00	9.59	0.00
Work-Related Fatalities	0	0	0	0
<b>Exploration</b>				
Types of Injury	Recordable	Recordable	Recordable	Recordable
Number of Injuries	2	0	0	0
Injury Rate	4.03	0.00	0.00	0.00
Occupational Disease Rate	0.00	0.00	0.00	0.00
Lost Day Rate (SR)	0.00	0.00	0.00	0.00
Work-Related Fatalities	0	0	0	0
<b>Corporate Offices</b>				
Types of Injury	Recordable	Recordable	Recordable	Recordable
Number of Injuries	0	0	0	0
Injury Rate	0.00	0.00	0.00	0.00
Occupational Disease Rate	0.00	0.00	0.00	0.00
Lost Day Rate (SR)	0.00	0.00	0.00	0.00
Work-Related Fatalities	0	0	0	0

\*Workers who are not employees (including those whose work, or workplace, is controlled by the organization)

### Explanation of how data are compiled

**Types of Injuries:** For the purpose of this report, the 'Injury Rate' is based on total recordable injuries (Medical Treatment Cases + Restricted Duty Cases + Lost Time Cases). First aid injuries are not included.

- **Lost Day Rate / Severity Rate (SR):** Based on workdays lost after the initial day of incident. SR is calculated as '(lost workdays x 200,000) / hours worked'.
- **Rate calculations:** For comparability, all rates are calculated based on the 2017 total hours worked (employee + contractor) at the respective location.
- **NR:** None reported or incomplete data.
- **Note:** Data for Absentee Rate is not collected because it is not a material issue for Lundin Mining

# INDEPENDENT ASSURANCE STATEMENT



## INTRODUCTION AND OBJECTIVES OF WORK

Bureau Veritas North America, Inc. (Bureau Veritas) was engaged by Lundin Mining Corporation (LMC) to conduct an independent third party assurance of select sustainability information presented in its 2017 Sustainability Report (the Report) for the calendar year ending in December 2017. This Assurance Statement applies to the related information included within the scope of work described below. The intended users of the assurance statement are LMC's management and stakeholders of LMC. The overall objective of the assurance process was to provide assurance on the accuracy, reliability and objectivity of LMC's Report for the specific key performance indicators (KPIs) covered by the scope of work (below).

The information that was assured and its presentation in the Report are the sole responsibility of the management of LMC. Bureau Veritas was not involved in the drafting of the Report. Our sole responsibility was to provide independent assurance on the selected KPIs.

## ASSURANCE STANDARD APPLIED

The assurance engagement was performed in accordance with AccountAbility's AA1000AS-2008 standard and was conducted to meet the AA1000AS Type II *moderate* level of assurance requirements.

## SCOPE OF WORK

LMC requested Bureau Veritas to include independent assurance of the following KPIs for the calendar year 2017 reporting period:

- Safety – total recordable injury frequency rate (TRIF) and lost time injury frequency rate (LTIF);
- Total amount of water withdrawn from all sources;
- Total amount of water discharged;
- Energy consumption within LMC's operations including electricity, liquid fuels and gaseous fuels;
- Greenhouse gas emissions – Scope 1, Scope 2 (location and market based);

- Stakeholder Grievances filed during the year;
- Stakeholder engagement as it relates to AccountAbility's AA1000AS (2008)<sup>1</sup> principles of inclusivity, materiality and responsiveness.

A table listing the reported and assured data is attached to this statement.

Excluded from the scope of our work is any assurance of information relating to:

- Performance indicators and text in the report not indicated above; and
- Activities outside the defined assurance period of calendar year 2017.

## METHODOLOGY

Bureau Veritas undertook the following activities:

1. Interviews with relevant personnel of LMC (including managers and staff members at the corporate and site level) and LMC's consultant;
2. Interviews with selected external stakeholders of LMC;
3. Review of internal and external documentary evidence produced by LMC;
4. Audit of select KPI data presented in the Report including a detailed review of samples of data;
5. Site visit to the Zinkgruvan Mine located near Askersund, Sweden.
6. Visit to LMC office in Toronto, Canada, where sustainability data from each site is collected, aggregated, analyzed and reviewed for quality and accuracy;
7. Review of LMC data and information systems for collection, aggregation, analysis and internal verification and review; and,
8. Review of the Report as it relates to the assured KPIs.

The work was planned and carried out to provide a moderate level of assurance and we believe it provides a sound basis for our conclusions.

## FINDINGS AND CONCLUSIONS

On the basis of our methodology and the activities described above, it is our opinion that:

- The information and data related to the KPIs identified in the scope of work that are included in the Report are accurate, reliable and free from significant error, material mistakes or misstatements.
- The Report provides a fair representation of LMC's activities as it relates to our scope of work over the reporting period.
- LMC has established appropriate systems for the collection, aggregation and analysis of relevant information, and has implemented underlying internal assurance practices that provide a reasonable degree of confidence that such information is complete and accurate.
- The Report adequately reflects the organization's alignment to, and implementation of the AA1000AS (2008) principles of Inclusivity, Materiality and Responsiveness in its operations (further detail is provided below).
- LMC has processes in place for consulting and engaging with its key stakeholders in a structured and systematic manner.
- LMC's has processes in place for recording and managing grievances through to their resolution.

## ADHERENCE TO THE PRINCIPLES OF AA1000AS

As required by the AA1000AS (2008) standard, outlined below are our observations relating to LMC's adherence to the principles of inclusivity, materiality and responsiveness.

### Inclusivity

LMC's Responsible Mining Policy and Stakeholder Engagement Standard outlines the company's commitments regarding communities, stakeholders and external engagement. LMC's Stakeholder Engagement Standard and supporting Stakeholder Engagement Corporate Procedure (Stakeholder Engagement Guidance document) provides the minimum requirements for sites to identify and engage with groups and individuals who may be impacted by company activities. Bureau Veritas observed implementation of external stakeholder engagement during our discussions with external stakeholders and LMC employees during our visit to the Zinkgruvan Mine. LMC's

approach to stakeholder engagement, examples of primary stakeholder groups and the key interests and concerns of each stakeholder group are described in the Stakeholder Engagement section of the Report. Our observations indicate that LMC takes Stakeholder concerns into consideration and has adequately addressed the inclusivity principle in its operations and the 2017 Report.

### Materiality

LMC commissioned a materiality assessment during 2017 that included identifying issues of importance for internal and external stakeholders. LMC conducted an internal review of material aspects identified in the 2017 materiality assessment to determine issues of importance to the company. LMC also identified additional issues that, while not deemed to be material to the business, were identified as issues of interest to some of their stakeholders. These additional issues were Governance, Human Rights, Biodiversity and Product Stewardship. The Report included a discussion of these identified issues and is organized to align with the issues determined to be material to LMC's business and stakeholders. Based on our site visit to the Zinkgruvan Mine, interviews with external stakeholders and LMC employees and review of the Report, LMC has adequately addressed the materiality principle in its operations and the 2017 Report.

### Responsiveness

LMC has developed requirements and systems to respond to stakeholder issues such as grievances and complaints in their Stakeholder Engagement Standard and associated Stakeholder Engagement Procedure (Guidance). The Guidance document requires sites to have a Stakeholder Communication and Engagement Plan and a Grievance Mechanism in place to identify, track and respond to concerns raised by stakeholders both formally and informally. Bureau Veritas observed the implementation of Stakeholder Engagement Guidance and the Grievance Mechanism through our discussions with external stakeholders and LMC employees during our visit to the Zinkgruvan Mine, and through review of internal reports. Responses to stakeholder concerns were found to be timely and complete based on observations made at the Zinkgruvan Mine and reviews of internal reports. Based on our review, we conclude that LMC has adequately addressed the responsiveness principle in its operations and the 2017 Report.

<sup>1</sup> Published by AccountAbility: The Institute of Social and Ethical Accountability

# INDEPENDENT ASSURANCE STATEMENT



## KEY OBSERVATIONS AND RECOMMENDATIONS

- LMC showed continued improvement in safety performance. This is evident based on improvement in TRIF and LTIF from 2014 to 2017, and having zero fatalities in 2016 and 2017, compared to one in 2015. The company's commitment to a safe workplace is evidenced by the inclusion of health and safety as the first principle in their Responsible Mining Policy.
- LMC's commitment to Stakeholder Engagement was evident during our visit to the Zinkgruvan Mine, as well as during our visit in 2017 to the Eagle Mine. We did note that the Zinkgruvan Mine could improve methods used to track stakeholder engagement and recorded grievances and their resolution.
- A lack of site-specific written protocols and procedures for tracking various performance data such as water consumption, water discharge and energy consumption, as well as manual calculations of some data, were observed at the Zinkgruvan Mine. Although these data were found to be tracked and accurately reported, the reduction of manual handling of data and the development of site-specific written documentation for data collection methods will help ensure continued consistent data management and reporting in the future and will be helpful in the event of employee turnover.
- Based on our visits to the Zinkgruvan Mine in 2018 and Eagle Mine in 2017, most key performance data are tracked and reported periodically to local mine management during the reporting year. However, the mine sites appear to report select KPIs to corporate on a yearly basis. More frequent and consistent reporting of KPIs to corporate should be considered to allow identification of trends and implementation of opportunities for improvement throughout the year.

## STATEMENT OF INDEPENDENCE, IMPARTIALITY AND COMPETENCE

Bureau Veritas is an independent professional services company that specializes in Quality, Health, Safety, Social and Environmental management with over 185 years history in providing independent assurance services, and an annual 2017 revenue of 4.6 Billion Euros.

No member of the assurance team has a business relationship with LMC, its Directors or Managers beyond that of verification and assurance of sustainability data and reporting. We have conducted this verification independently and we believe there to have been no conflict of interest. Bureau Veritas has implemented a Code of Ethics across the business to maintain high ethical standards among staff in their day-to-day business activities.

The assurance team has extensive experience in conducting assurance over environmental, social, ethical and health and safety information, systems and processes, has over 20 years combined experience in this field and an excellent understanding of Bureau Veritas standard methodology for the Assurance of Sustainability Reports.

Attestation:

**David Reilly**, Lead Verifier  
Senior Project Manager  
Sustainability and Climate Change Services  
Bureau Veritas North America, Inc.

**Lisa Barnes**, Technical Reviewer  
Principal Sustainability Consultant  
Sustainability and Climate Change Services  
Bureau Veritas North America, Inc.



Bureau Veritas North America, Inc.  
Santa Ana, California, USA  
May 14, 2018



## LUNDIN MINING CORPORATION DATA AND INFORMATION SUBJECT TO ASSURANCE

Type	Unit	Results for 2017
<b>Fuels and Energy</b>		
Purchased Fuels (Scope 1)	Gigajoules	3,519,401
Purchased Electricity (Scope 2)	Gigajoules	4,388,728
Total Energy Consumption (Scope 1 and 2)	Gigajoules	7,908,129
<b>Emissions</b>		
Direct CO <sub>2</sub> e Emissions (Scope 1)	Metric Tons CO <sub>2</sub> Eq	287,225
Indirect (purchased electricity) CO <sub>2</sub> e Emissions (Scope 2) (Location-based)	Metric Tons CO <sub>2</sub> Eq	465,263
Indirect (purchased electricity) CO <sub>2</sub> e Emissions (Scope 2) (Market-based)	Metric Tons CO <sub>2</sub> Eq	440,075
Total Scope 1 and Scope 2 CO <sub>2</sub> e Emissions (Location-based)	Metric Tons CO <sub>2</sub> Eq	752,448
<b>Water</b>		
Total Water Withdrawal	Cubic Meters	31,038,727
Total Water Discharged	Cubic Meters	15,025,882
<b>Safety</b>		
Total Recordable Injury Frequency Rate (TRIF)	TRIF is calculated as (total number of recordable injuries (including fatalities, lost time injury, restricted work and medical treatment injury) x 200,000 hours)/ total hours worked	0.56
Lost Time Injury Frequency Rate (LTIF)	LTIF is calculated as (total lost time injuries x 200,000 hours)/ total hours worked	0.30
<b>Stakeholder Engagement and Grievance Mechanism</b>		
Stakeholder Engagement	NA	LMC was found to be effectively engaging with Stakeholders and considering stakeholder input in adherence to the AA1000APS principles of inclusivity, materiality and responsiveness.
Grievance Mechanism	NA	LMC has a functioning grievance mechanism in place and in use.
Grievances Filed	Number of grievances filed during 2017 company wide	67

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## In Accordance with the 'Core' Option

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<b>STRATEGY</b>			
102-14		Statement from senior decision-maker	Pages 2-3
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102-16		Values, principles, standards and norms of behavior	Pages 8, 10-11, 25-26
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Core Disclosures	Additional Disclosures	Description	Location of Data
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102-40		List of stakeholder groups	Pages 53-55
102-41		Collective bargaining agreements	Page 48
102-42		Identifying and selecting stakeholders	Page 52
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102-44		Key topics and concerns raised	Pages 52-56

Core Disclosures	Additional Disclosures	Description	Location of Data
<b>REPORTING PRACTICES</b>			
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102-47		List of material topics	Page 6
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102-49		Changes in reporting	Page 6
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102-51		Date of most recent report	Page 5
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Core Disclosures	Additional Disclosures	Description	Location of Data
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	201-2 (partial)	Financial implications and other risks and opportunities due to climate change	Page 91
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	202-2 (partial)	Proportion of senior management hired from the local community	Page 40
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103-1, 103-2, 103-3		Explanation of the material topic and its Boundary, the management approach and its components, evaluation of the management approach	Pages 52, 59
203-1		Infrastructure investments and services supported	Pages 42-43, 64-66
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204-1		Proportion of spending on local suppliers	Page 39
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	205-1	Operations assessed for risks related to corruption	Page 25
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✓ Externally Assured

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	302-1 ✓	Energy consumption within the organization	Page 92
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	302-3	Energy intensity	Page 94
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<b>Water</b>			
	103-1, 103-2, 103-3	Explanation of the material topic and its Boundary, the management approach and its components, evaluation of the management approach	Page 77
	303-1 ✓	Water withdrawal by source	Pages 78-79
	303-2 (partial)	Water sources significantly affected by withdrawal of water	Pages 78-80
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	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Page 103
	304-2 (partial)	Significant impacts of activities, products and services on biodiversity	Pages 102-103
	304-3 (partial)	Habitats protected or restored	Pages 102-103
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	Page 103
	MM1	Amount of land (owned or leased and managed for production activities or extractive use) disturbed or rehabilitated	Page 106
	MM2	The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria and the number (percentage) of those sites with plans in place	Page 102

Core Disclosures	Additional Disclosures	Description	Location of Data
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	305-1 ✓	Direct (Scope 1) GHG emissions	Pages 95-97
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	305-3	Other indirect (Scope 3) GHG emissions	Page 99
	305-4	GHG emissions intensity	Page 98
	305-5	Reduction of GHG emissions	Pages 99-100
	305-6	Emissions of ozone-depleting substances (ODS)	None
	305-7	Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ) and other significant air emissions	Page 101
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	103-1, 103-2, 103-3	Explanation of the material topic and its Boundary, the management approach and its components, evaluation of the management approach	Pages 82, 84
	306-1 ✓	Water discharge by quality and destination	Pages 82-83
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Core Disclosures	Additional Disclosures	Description	Location of Data
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✓ Externally Assured

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407-1		Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Page 26, 48
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	408-1	Operations and suppliers at significant risk for incidents of child labour	Page 26
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	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labour	Page 26
<b>Rights of Indigenous Peoples</b>			
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411-1		Incidents of violations involving rights of Indigenous Peoples	Page 58

Core Disclosures	Additional Disclosures	Description	Location of Data
<b>SOCIAL TOPICS</b>			
<b>Rights of Indigenous Peoples</b>			
	MM5	Total number of operations taking place in or adjacent to Indigenous Peoples' territories and number and percentage of operations or sites where there are formal agreements with Indigenous Peoples' communities	Page 57
	MM6	Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous Peoples	Page 58
	MM7	The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and Indigenous Peoples and the outcomes	Page 58
<b>Local Communities</b>			
103-1, 103-2, 103-3		Explanation of the material topic and its Boundary, the management approach and its components, evaluation of the management approach	Pages 50, 52
413-1		Operations with local community engagement, impact assessments and development programs	Pages 53-56, 58, 64-67
	413-2	Operations with significant actual and potential negative impacts on local communities	Page 59

Core Disclosures	Additional Disclosures	Description	Location of Data
<b>SOCIAL TOPICS</b>			
<b>Local Communities</b>			
	MM8	Number (and percentage) of company operating sites where artisanal and small-scale mining takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks	Near our Candelaria site, there are small mining operations (pirquineros), the closest of which is 1 km away. Candelaria is engaging and collaborating with these small-scale miners on an ongoing basis to improve their safety practices and explore economic development opportunities
	MM9	Sites where resettlements took place, the number of households resettled in each and how their livelihoods were affected in the process	Not Applicable
<b>Customer Privacy</b>			
	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Page 71
<b>Socio Economic Compliance</b>			
	419-1	Non-compliance with laws and regulations in the social and economic area	None

The following GRI Standards were used in the development of this report: GRI 101: Foundation 2016, GRI 102: General Disclosures 2016, GRI 103: Management Approach, GRI 200: Economic 2016, GRI 300: Environmental 2016 and GRI 400: Social 2016.

✓ Externally Assured

## CAUTIONARY NOTE ON FORWARD-LOOKING STATEMENTS

This sustainability report and documents incorporated herein by reference contain “forward-looking information” within the meaning of applicable Canadian securities legislation. All information, other than historical facts, constitutes forward-looking information and statements containing such information constitute forward-looking statements, which information and statements are based on current expectations, estimates, forecasts and projections as well as beliefs and assumptions made by the Company’s management. Such forward-looking statements include, but are not limited to, statements with respect to possible or future events and outcomes, performance, expectations, goals, initiatives, opportunities, objectives, plans, projects or strategy; estimations and the realization of such estimates (including but not limited to associated timing, amounts and costs), expectations regarding expenditures, activities and timelines (including, but not limited to, regarding reclamation, permitting and other government approvals), impacts of community investment and government regulation; environmental risks; Mineral Reserve and Mineral Resources, mine life and life of mine, all of which are estimates; feasibility studies and their results; and projects. Forward-looking statements can be identified by the use of forward-looking terminology such as “aim”, “anticipates”, “believe”, “budget”, “commitment”, “estimate”, “expects”, “effort”, “focus”, “forecasts”, “forward”, “foster”, “future”, “goal”, “guidance”, “indicator”, “initiative”, “intends”, “look”, “likelihood”, “mission”, “model”, “objective”, “opportunity”, “pipeline”, “plan”, “position”, “possible”, “potential”, “principle”, “priority”, “profile”, “program”, “project”, “projected”, “promote”, “propose”, “pursue”, “risk”, “schedule”, “seek”, “strategy”, “strive”, “target” or “trend”, or variations of such words and phrases, or statements that certain actions, events or results may, could, would, might or will be taken, occur or be achieved. Forward-looking statements are necessarily based upon a number of estimates, assumptions and expectations that, while considered reasonable by the Company as of the date of such statements, are inherently subject to known and unknown risks, uncertainties and contingencies. Such risks, uncertainties

and contingencies could cause assumptions, beliefs, estimates and expectations to be incorrect and actual results to differ materially from those projected in the forward-looking statement and, as such, there can be no assurance that forward looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Such risks, uncertainties and contingencies include but are not limited to those relating to: unusual or unexpected geological formations, estimation and modelling of grade, tonnes, metallurgy continuity of mineral deposits, dilution and Mineral Resources and Mineral Reserves and actual ore mined and/or metal recoveries varying from such estimates; mine plans and life of mine estimates; the possibility that future exploration, development or mining results will not be consistent with expectations; the potential for and effects of labour disputes, shortages or other unanticipated difficulties with or interruptions in production; potential for unexpected costs and expenses including, without limitation, for mine closure and reclamation at current and historical operations; uncertain political and economic environments; changes in laws or policies, foreign taxation, delays or the inability to obtain necessary governmental approvals and/or permits; regulatory investigations, enforcement, sanctions and/or related or other litigation; and other risks and uncertainties, including but not limited to those described in the “Risks and Uncertainties” section of the Company’s most recently filed *Annual Information Form* and in the “Managing Risks” of the Company’s full-year 2017 and interim 2018 Management’s Discussion and Analysis. Should one or more of these risks, uncertainties or contingencies materialize, or should underlying estimates, assumptions and expectations prove incorrect, actual results may vary materially from those described in forward-looking statements. Accordingly, there can be no assurance that forward-looking information will prove to be accurate and readers are advised not to place undue reliance on forward-looking statements. The Company does not undertake to update such forward-looking information unless required under applicable laws.



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## SUSTAINABILITY REPORT FEEDBACK

We welcome feedback from stakeholders regarding our 2017 Sustainability Report. For further information or comments, please contact:

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