PAN AMERICAN
— S I L V E R —

2019

Sustainability Report

CELEBRATING OUR SILVER JUBILEE:

25 years of responsible mining operations in the Americas

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About Pan American Silver

Pan American Silver engages in mining precious metals and related activities, including exploration, mine development, extraction, processing, refining, and reclamation.

The Company owns and operates silver and gold mines located in Mexico, Peru, Bolivia, Argentina, Guatemala and Canada. In addition, the Company is exploring new mineral deposits and opportunities throughout North and South America.

Pan American Silver is listed on the following Stock Exchanges:

- Toronto Stock Exchange ("TSX") (Symbol: PAAS)
- Nasdaq Global Select Market ("NASDAQ") (Symbol: PAAS)

Core Business and Strategy

Our vision is to be the world's premier silver producer, with a reputation for excellence in discovery, engineering, innovation, and sustainable development. Our strategy to achieve this vision is to:

- Generate sustainable profits and superior returns on investments through the safe, efficient and environmentally sound development and operation of our assets.
- Constantly replace and grow our reserves and resources through targeted near-mine exploration and business development.
- Foster positive long-term relationships with our employees, shareholders, communities and local governments through open and honest communication and ethical and sustainable business practices.
- Continually search for opportunities to upgrade and improve the quality of our assets, both internally and through acquisition.
- Encourage our employees to be innovative, responsive and entrepreneurial throughout our entire organization.
- Creating sustainable value for stakeholders through operating in a responsible and ethical manner and applying sustainability best practices.

To execute our vision, Pan American Silver attracts, develops, and retains a sector-leading team of mining professionals. Our team has a depth of knowledge and experience in all aspects of our business, which enables us to confidently advance early stage projects through construction and into operation.

We continue to look to applying the United Nations Sustainable Development Goals to shape our sustainability work.

About this Report

On Pan American Silver's 25th year of operation, we are proud to release our 10th annual sustainability report.

These reports communicate our vision of sustainability, share how we address sustainable development in the context of our business, disclose how we manage environmental, workplace and social issues, and demonstrate progress toward our sustainability goals and initiatives. Reporting also allows us and stakeholders to benchmark our performance against industry peers.

Throughout this report, we refer to Pan American Silver Corp. as Pan American Silver or the Company and use the terms we, us and our to refer to Pan American Silver Corp. and its subsidiaries.

Audience

The intended audience for this report is our stakeholders, which we refer to as communities of interest, or COIs. This group includes shareholders, employees and contractors, unions, local communities, governments, suppliers, industry associations and regulatory agencies, non-governmental organizations, and civil society. Environmental, Social and Governance (ESG) focused investors are increasingly a part of our audience.

Content and Scope

We regularly engage with *COIs* to identify the issues that are most important to them. This report describes our management approach and performance with respect to these issues within the context of our overall sustainability and business strategies.

Pan American Silver acquired Tahoe Resources Inc. (Tahoe or Tahoe Resources) on February 22, 2019. Tahoe's mines have been incorporated into our reporting. With this acquisition, we have adapted our sustainability performance reporting while maintaining our core values. Consequently, this report includes additional sustainability disclosures and information on our practices.

The scope of this report covers our nine mining operations:
- Timmins West and Bell Creek operation in Canada
- La Colorada and Dolores in Mexico
- Huaron, La Arena, Morococha, and Shahuindo in Peru
- Manantial Espejo in Argentina
- San Vicente in Bolivia

Our Escobal mine in Guatemala is on care and maintenance, and our Alamo Dorado mine in Mexico is in post-closure. However, certain operating, people management, economic, environmental, and social data for these mines and properties are included in this report. Our other development projects and exploration sites are excluded from the scope of this report, with the exception of certain data and information related to safety and people management. When applicable, we include information and data regarding our headquarters in Vancouver and our regional offices.

"I am proud of our continued commitment to building and maintaining a reputation for excellence in discovery, engineering, innovation, safety and long-term sustainability."

- Michael Steinmann

Additional Details

Reporting Period	January 1 to December 31, 2019; reporting performed annually.
Date of Last Report	May 2019
Reporting Framework	This report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards: core option and GRI Mining & Metals Sector Disclosures. The GRI content index can be found **here**.
Changes in Reporting	This report now includes four new operations, which were acquired during 2019: Timmins West and Bell Creek; La Arena; Shahuindo; and Escobal. However, there are no significant changes in material topics or topic boundaries from the 2018 report.
Data and Assurance	Pan American Silver acquired Tahoe Resources in February 2019. We have included aggregated data from the Tahoe mines for January and February 2019. For certain indicators, trend data have been shown for the six silver mines in existence prior to Pan American Silver's acquisition of Tahoe. Data have been reviewed internally at both the site and corporate office levels. Certain economic data have been extracted from our 2019 audited annual financial statements Data are reported using the metric system and US dollars.
Additional Information	In addition to annual sustainability reports, we disclose our operating and financial results on a quarterly and annual basis, along with details of exploration and development projects that will sustain our future business. These reports are available on our website.
Contact	We welcome any feedback related to this report. Please direct your comments or questions to Brent Bergeron, Senior Vice President, Corporate Affairs and Sustainability or to Monica Moretto, Vice President of Social Sustainability, Inclusion and Diversity at csr@panamericansilver.com

President's Message

MICHAEL STEINMANN // PRESIDENT & CEO

2019 marked Pan American Silver's 25th year of operation. This was a transformative year for the Company with the acquisition of Tahoe Resources, and I am proud of our accomplishments.

I am equally proud of our continued commitment to building and maintaining a reputation for excellence in discovery, engineering, innovation, safety and long-term sustainability.

With the acquisition, we added four new operations to our portfolio: La Arena and Shahuindo in Peru, Timmins West and Bell Creek in Canada, and Escobal in Guatemala. We also doubled our workforce and our silver reserves and added substantial gold production.

Our focus in 2019 was the integration of the Tahoe assets into our portfolio, including instilling Pan American Silver's values and sustainability approach at the new operations. We have also been working to leverage synergies and share best practices, which are already contributing to performance improvements across the organization. I would like to thank both the Pan American Silver and Tahoe Resources teams for their efforts in making the transition successful.

We are continuously striving to improve our sustainability performance. One component of this is the implementation of the Mining Association of Canada's (MAC) Towards Sustainable Mining (TSM) protocols and frameworks, a world class management standard designed to help mining companies address and manage key sustainability issues. We are on track to reach level A in 2020 at all of our operations other than those acquired through Tahoe; we anticipate reaching level A at those operations by 2022.

During the year, we made significant efforts towards formalizing our approach to human rights. We implemented a new Human Rights Policy and appointed a Human Rights Officer. We are also deepening our alignment with the Voluntary Principles on Security and Human Rights and UNICEF Canada's Child Rights and Security Checklist at operations using security forces.

Following the acquisition of the Escobal mine in Guatemala, during 2019, we settled the Garcia v. Tahoe Resources Inc. case, which was brought against Tahoe for the use of violence during a protest at the mine in 2013. It was important to demonstrate that we strive to reach peaceful, amicable resolution to conflicts through constructive and respectful dialogue. Mining operations at Escobal remain suspended and on care and maintenance, pending completion of an International Labour Organization 169 consultation process by the Government of Guatemala. During this time, we are complying with the requirements of Escobal's environmental management plan, which includes respecting existing commitments to the communities and responding to requests for information.

Our human rights policy also reinforces our commitment to building a diverse and inclusive workforce. Diversity makes us better, and we will continue to emphasize the importance of diversity and inclusivity at all our operations, including increasing the number of women in our workforce. In 2020, we will be piloting our Building Respect Together program with the intention of creating more respectful, safe, and sustainable work environments. The program will also include content to foster greater understanding and protection of, and respect for women's rights.

We believe responsible mining can provide important benefits to communities. Our host communities are stakeholders in our success, and we work with them

to share the benefits of our operations and to create sustainable improvements in their quality of life. We are currently supporting 16 long-term socio-economic development programs in our host communities. Education is a focus in our programs, and we have helped more than 8,000 students acquire quality primary and post-secondary education.

Our human rights policy explicitly makes the connection between protection of the environment and human rights, and it commits us to take action toward reducing our water usage and reducing our emissions. We consider climate change to be one of the most important issues of our time. We are strengthening our reporting on greenhouse gas emissions and our climate change mitigation efforts. In line with recommendations from the Task Force on Climate-Related Financial Disclosures, we also completed a review of the potential risks that climate change poses for our operations. And, we are investing in initiatives to make our host communities more resilient to climate change; our reforestation projects at Dolores and La Arena, with more than 360,000 trees planted during the year, are good examples of this.

In 2019, we completed an independent tailings dam safety review at our La Colorada mine. We have now completed independent tailings dam safety reviews at all of our operating facilities. Also, in 2019, we submitted our data to the Investor Mining and Tailings Safety Initiative, supporting transparent reporting of tailings information. Our ongoing commitment is to advocate for responsible tailings management through MAC and the Global Tailings Review.

In spite of our focus on the continuous improvement of our safety performance, tragic accidents at our Morococha mine in Peru and our Manantial Espejo mine in Argentina resulted in two employee fatalities. We are deeply saddened by the loss of these lives and extend our heartfelt sympathy to the family and co-workers of both employees. Safety is a priority for Pan American Silver, and we will continue our unrelenting focus on improving safety for the more than 12,000 employees and contractors who work at our sites. We are currently implementing measures designed to prevent similar accidents in the future, and we continue our programs focused on embedding and furthering the culture of safety at each site.

Early in 2020, we find ourselves facing unprecedented challenges stemming from the COVID-19 pandemic. Our primary concern is the health and safety of our employees and contractors, and the communities, where they live and work. We are implementing all the necessary measures to protect our people and help in the global effort to reduce the impact of the pandemic. As a company, we remain flexible and we are adapting our business continuity plans as the situation evolves. The COVID-19 pandemic is a very disruptive, but transitory event and calls for socially responsible leadership. We are adhering to our core values, responding to the impacts of this event with sensitivity, patience, and resilience.

We enter 2020 with a well-diversified portfolio of assets, large reserves, a strong financial position, and a team of top talent. I recognize that with the recent growth of the Company, and the assets we have acquired, comes increased visibility and expectations around our ESG and operational performance.

It is imperative that we continue to strive for excellence by demonstrating sustainability leadership and exceeding stakeholder expectations. Throughout our 25-year history, our people have been working to provide value to our stakeholders and contribute to the well-being of our host communities. I am thankful for their contributions and look forward to the future we are building together.

Chairman's Message

ROSS BEATY // CHAIRMAN

Twenty-five years ago, I founded Pan American Silver with a simple mission: to become the world's best silver mining investment.

I wanted to build a world-class mining company, providing solid returns to shareholders while creating value for all of our stakeholders.

Our long history of building and operating mines throughout Latin America is a testament to our success in managing a sustainable business.

Everything we do as humans has an impact, and mining is no exception. However, these impacts can be minimized as much as possible with dedicated attention to the principles of sustainability. I am very proud of how Pan American Silver strives to do this at all of its operations. I recognize that the term "sustainable mining" is an oxymoron, in that mining is non-renewable. So, what does sustainable mining mean at Pan American Silver? It means recognizing where we need to mitigate the impacts of our operations and working to protect the ecosystem in and around our mining sites. It means ensuring safe and healthy workplaces for employees and contractors. It means partnering with our employees, contractors, communities and host governments to create long-term economic benefits. And it means creating the best possible conditions for a community to thrive after our mines close. I am very proud of how Pan American Silver strives to do this at all of our operations.

We always ask ourselves: how can we mine better? One way we achieve this is through honest and transparent dialogue. Communicating and working with our peers, communities, and the NGO community enables us to create better solutions from diverse views. Open dialogue also helps us understand emerging issues and develop tools and technologies to improve our business. In late 2016, we joined our peers in the Mining Association of Canada and began work on implementing the Towards Sustainable Mining (TSM) frameworks and protocols. Our participation in this process will help us implement leading social and environmental practices, as well as strengthen our health and safety programs.

Another ambitious commitment we made was joining the World Economic Forum's Alliance of CEO Climate Leaders in 2017. This global network of board chairs and CEOs is leading the transition to a low-carbon, climate-resilient economy.

Mining operations are not immune to the impacts of climate change, or to the regulatory requirements of mitigation and adaptation. Our participation ensures that we are in dialogue with our peers, which makes us better prepared for the coming challenges and opportunities related to climate change. I also observe that silver plays an important role in the transition to a low-carbon economy. The largest single industrial use of silver today is in photovoltaic cells that produce solar energy, a profound part of the shift from fossil fuels to renewable energy.

We continue to look to applying the United Nations Sustainable Development Goals to shape our sustainability work. The 17 indicators enshrined in this framework are ambitious and comprehensive. They help ensure that we approach our work in a holistic fashion, aligned with identified global priorities, and that our efforts create lasting positive impacts in the places we operate.

A good company is one that rewards its shareholders. A great company is one that also looks after its employees, contractors, environment, countries, and communities where it works. I am very proud of our team's sustainability achievements. It is the collective efforts of all of those who work at Pan American Silver that enable us to maintain our stellar reputation – as a great silver mining company and a great leader in sustainability.

2019 Highlights

ZERO

SIGNIFICANT ENVIRONMENTAL INCIDENTS AT OUR OPERATIONS

95

COMMUNITIES AND INDIGENOUS GROUPS THAT BENEFIT FROM OUR SOCIO-ECONOMIC PROGRAMS DIRECTLY OR INDIRECTLY

1,065,088

HOURS OF SAFETY TRAINING IN 2019

CHAIRMAN'S SAFETY AWARD

DOLORES MINE WAS RECIPIENT OF THE CHAIRMAN'S SAFETY AWARD FOR BEST OVERALL SAFETY PERFORMANCE

360,000

MORE THAN 360,000 TREES PLANTED AT DOLORES AND LA ARENA

2,368

FAMILIES BENEFITED FROM OUR INFRASTRUCTURE INVESTMENTS

8,778

PEOPLE RECEIVED MEDICAL ATTENTION

99%

OF OUR EMPLOYEES ARE FROM THE COUNTRIES WHERE WE OPERATE

25%

DECREASED OUR NON-RECYCLABLE HAZARDOUS WASTE GENERATION AT SILVER SEGMENT OPERATIONS

Company at a Glance

Diversified Portfolio Across the Americas

OPERATING MINES
(all data as at December 31, 2019)

TIMMINS WEST & BELL CREEK[1]

Location: Canada
Ownership: 100%
Mine Type: Underground
Gold Production: 143.8 koz
Employees: 750

DOLORES

Location: Mexico
Ownership: 100%
Mine Type: Open Pit/Underground
Silver Production: 5.1 Moz
Gold Production: 117.6 koz
Employees: 1,615

LA COLORADA

Location: Mexico
Ownership: 100%
Mine Type: Underground
Silver Production: 8.2 Moz
Employees: 1,022

SHAHUINDO[1]

Location: Peru
Ownership: 100%
Mine Type: Open Pit
Gold Production: 145.4 koz
Employees: 2,159

LA ARENA[1]

Location: Peru
Ownership: 100%
Mine Type: Open Pit
Gold Production: 122.5 koz
Employees: 1,291

HUARON

Location: Peru
Ownership: 100%
Mine Type: Underground
Silver Production: 3.8 Moz
Employees: 1,517

MOROCOCHA[2]

Location: Peru
Ownership: 92.3%
Mine Type: Underground
Silver Production: 2.5 Moz
Employees: 1,422

SAN VICENTE[3]

Location: Bolivia
Ownership: 95%
Mine Type: Underground
Silver Production: 3.5 Moz
Employees: 640

MANANTIAL ESPEJO / COSE / JOAQUIN

Location: Argentina
Ownership: 100%
Mine Type: Underground
Silver Production: 2.6 Moz
Gold Production: 22.4 koz
Employees: 773

(1) Reflects production results subsequent to the February 22, 2019, closing date of the acquisition of Tahoe Resources Inc., as described in the "Acquisition of Tahoe" section of Pan American Silver's management's discussion and analysis (MD&A) for the period ended December 31, 2019.
(2) Morococha data represents Pan American Silver's 92.3% interest in the mine's production.
(3) San Vicente data represents Pan American Silver's 95.0% interest in the mine's production.

Corporate Office

Mining Operations

Development and
Advanced Stage
Exploration Projects

NORTH AMERICA

SOUTH AMERICA

Bell Creek
Timmins West

Dolores

La Colorada
Skarn Deposit

Escobal

Shahuindo
La Arena
Huaron
Morococha

San Vicente

Navidad

COSE

Joaquin
Manantial Espejo

Our Products

Our principal products and sources of sales are silver and gold doré and silver bearing zinc, lead, and copper concentrates.

SILVER (Ag)

BARS & COINS
Silver is refined into bars and coins for sale to international markets.

ELECTRONICS & BATTERIES
Silver is malleable, resists corrosion and oxidation, and is the best thermal and electrical conductor of all metals.

JEWELRY
Silver is used to create beautiful, pieces of jewelry around the world.
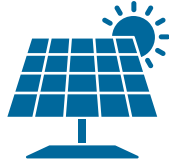
SOLAR PANELS
Silver paste is a key component of photovoltaic cells used in solar panels that transform sunlight into electrical energy.

HEALTH
Silver's antimicrobial and non-toxic qualities are beneficial for human health.

WATER PURIFICATION
Silver can be found in water purifying systems due to its antibacterial qualities.

SILVERWARE
Silver is used to create everything from serving trays, to cutlery, to candlesticks.

GOLD (Au)

INVESTING
Governments, institutions, or individuals may hold gold coins or bullion as forms of investment.

ELECTRONICS
Gold is an efficient conductor of electricity and used in most electronic devices.

JEWELRY
Globally, jewelry is the primary use of gold.

Our Supply Chain

Mining requires a reliable supply chain and transport logistics for both supply materials and products. Our service providers are primarily locally based companies or local subsidiaries of international service or consulting groups.

Our mines process ore to produce doré bars (an alloy composed primarily of silver and gold) or mineral rich concentrates (a mixture of base metals containing silver). We send our doré to refineries, which further refine it to produce silver and gold bullion, which is then sold to various bullion banks, traders and consumers. We sell our concentrates to traders or smelters, which further process and refine it into marketable products.

INPUTS

LABOUR AND EQUIPMENT   WATER   ENERGY   CHEMICALS   LOGISTIC SERVICES

PROCESSES

MINING OPERATIONS

ORE PROCESSING

PRODUCTS

METAL CONCENTRATES

SILVER, ZINC, LEAD, COPPER AND GOLD
(LA COLORADA, HUARON, MOROCOCHA, SAN VICENTE, ESCOBAL)

DORÉ

REFINED SILVER AND GOLD BARS
(LA COLORADA, DOLORES, MANANTIAL ESPEJO, LA ARENA, SHAHUINDO, TIMMINS)

CONCENTRATE

DORÉ

TRANSPORTATION

TRANSPORT

TRANSPORT   REFINERIES   REFINED METAL

CUSTOMER

SMELTER

PRECIOUS METALS MARKET

REFINED METAL

Stakeholder Engagement

Engagement is a core practice at Pan American Silver as our business success is dependent on establishing positive relationships and trust with stakeholders and our communities of interest (COIs), which include, local communities, Indigenous peoples, governments, non-governmental organizations, employees and contractors, customers, suppliers, shareholders, and mining community members that interact with our operations.

We welcome and promote open, meaningful engagement and dialogue with all stakeholders and COIs.

We engage COIs before starting new projects and continue this engagement throughout the mine's life cycle. We continue to expand and improve our COI engagement processes by applying a structured and strategic approach as new projects advance. This helps us identify and manage potential impacts and sustain constructive long-term relationships with the COIs. Our processes include:

- Community of interest mapping to identify a broad range of COIs.
- Development of tools and resources that support more effective engagement processes, measure their effectiveness, and help us understand and manage COI expectations.
- Establishing and continuing meaningful dialogue with COIs to determine which issues or topics are the most important to them and addressing issues of concerns.

We augment the feedback we receive from our ongoing engagement processes by annually surveying COIs identified in our mapping process. This survey forms the basis of our materiality assessment. In 2019, a total of 1,146 individuals or respondent groups, representing six key stakeholder groups, responded to our survey, compared to 645 in 2018.

In 2019, a total of 1,146 individuals or groups, representing six key stakeholder groups, responded to our survey.

Annual Stakeholder Survey

BREAKDOWN OF SURVEY RESPONDENTS

Government 5%
Religious Groups 1%
NGOs 3%
Community Member & Indigenous Groups 18%
Community Member & Indigenous Groups 18%
Employees 57%
Contractors 16%
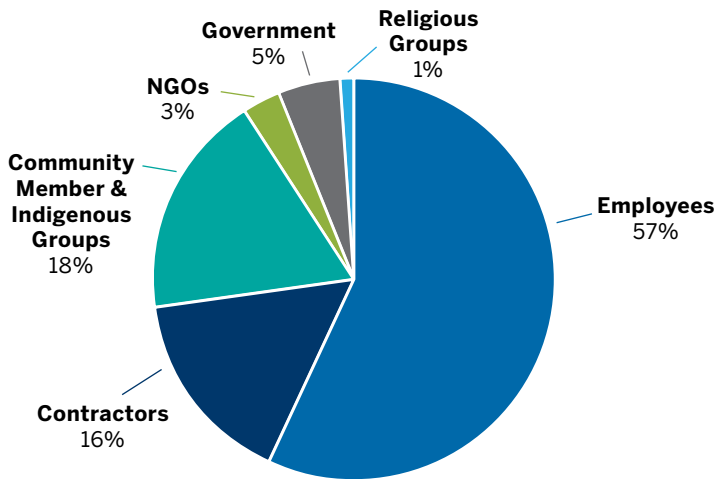
In 2019, we provided select COIs with an initial list of 41 sustainability topics related to Pan American Silver's business, and we asked them to rank the 10 topics most important to them. Similar to 2018, stakeholders ranked topics related to working conditions, socio-economic impact, and opportunities for communities, employees and contractors as top issues. New priority issues include our response (grievance) mechanism, emergency preparedness, and behaviour of security personnel. No environmental issues ranked as a top 10 topic in 2019.

TOP 10 SUSTAINABILITY TOPICS OF IMPORTANCE TO STAKEHOLDERS
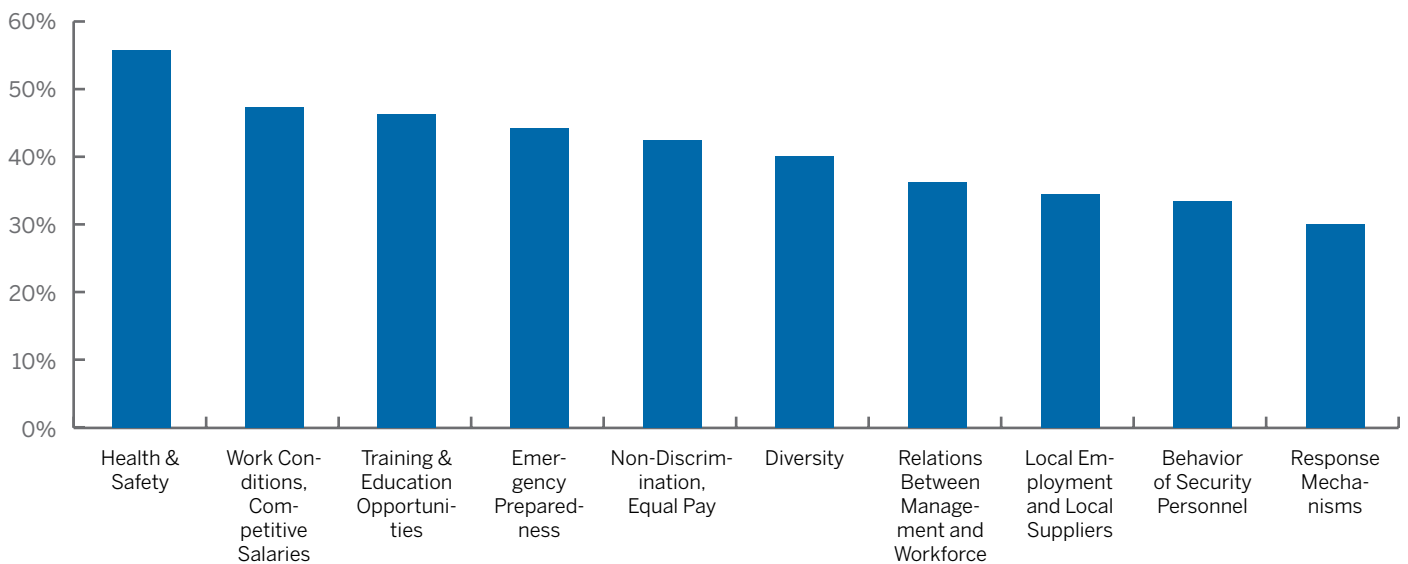
Materiality

Our COI survey forms the basis of our materiality assessment. It helps us define and analyze the impacts of our business on COIs.

By listening, we learn about the issues COIs see as important, which enables us to adjust the way we work to more effectively manage these issues. It also allows us to align our goals and priorities with those of our COIs. This process both strengthens our relationships with COIs and makes us a better company. Other factors considered in our materiality assessment include global trends, significance of a topic to the mining industry, Pan American Silver's business priorities, and our ability to influence the topic.
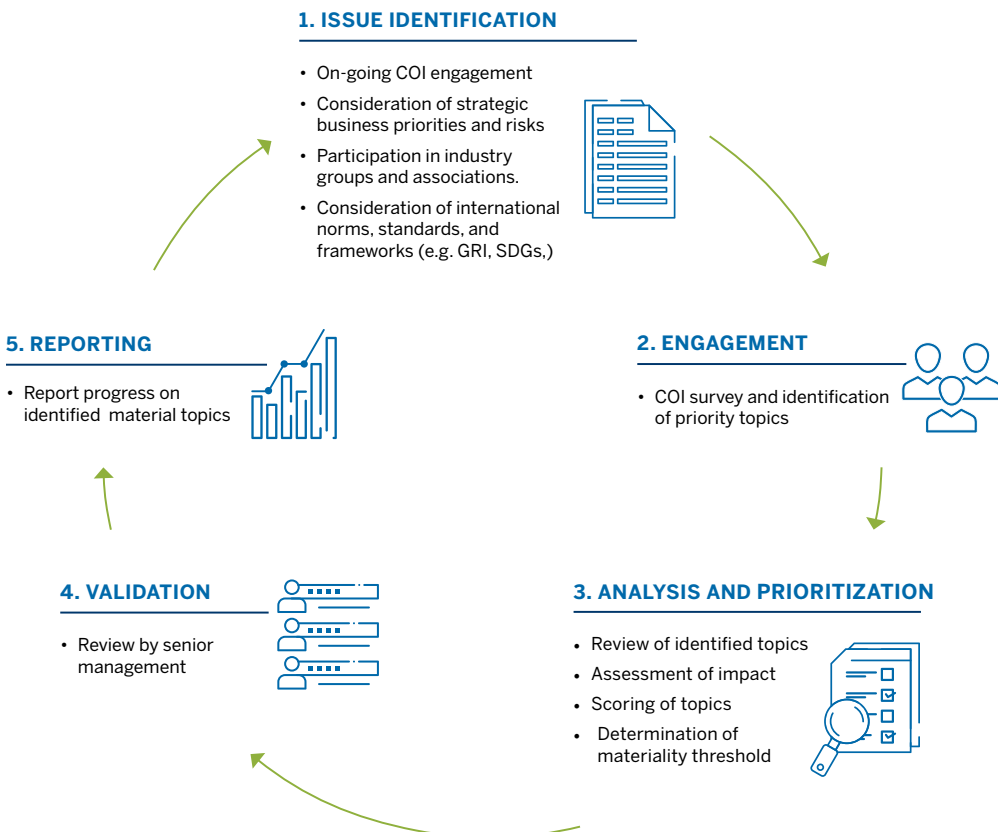
For reporting purposes, the topics covered in this report include Pan American Silver's most significant environmental and social impacts and topics of high importance to our COIs. We consider these topics to be material.

While material topics may have impacts on COIs internally, externally, or in the value chain, the reporting boundary for each identified topic is limited to our operations and local communities. Our approach to managing material topics is through the sustainability management implementation system and framework, which is connected to our core business strategy.

MATERIALITY PROCESS

1. ISSUE IDENTIFICATION

- On-going COI engagement
- Consideration of strategic business priorities and risks
- Participation in industry groups and associations.
- Consideration of international norms, standards, and frameworks (e.g. GRI, SDGs,)

5. REPORTING

- Report progress on identified material topics

2. ENGAGEMENT

- COI survey and identification of priority topics

4. VALIDATION

- Review by senior management

3. ANALYSIS AND PRIORITIZATION

- Review of identified topics
- Assessment of impact
- Scoring of topics
- Determination of materiality threshold

2019 Material Topics

We have amalgamated material topics into 11 high-level topics. The subtopics listed include the 10 most important topics to our COIs and the topics most relevant to our industry. For ease of reference, we have included the GRI indicator associated with the topic or subtopic.

Material Topic	Sub-topic	Associated GRI indicator
Responsible business		
Business ethics and anti-corruption	Tax transparency	*205-1* Operations assessed for risks related to corruption. *205-3* Confirmed incidents of corruption and actions taken.
Community		
Impacts on local communities	Managing environmental impacts Managing social impacts Response mechanisms	*MM6* Numbers and description of significant disputes relating to land use, customary rights of local communities, and indigenous people *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.
Community investment and sustainable development	Economic impact Local hiring and procurement Socio-economic development	*201-1* Direct economic value generated and distributed. *203-1* Infrastructure investments and services supported. *203-2* Significant indirect economic impacts. *204-1* Proportion of spending on local suppliers. *413-1* Operations with local community engagement, impact assessments, and development programs. *413-2* Operations with significant actual and potential negative impacts on local communities communities and indigenous people.
Human rights	Security personnel	*407-1* Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk. *408-1* Operations and suppliers at significant risk for incidents of child labour risk. *409-1* Operations and suppliers at significant risk for incidents of forced or compulsory labour. *410-1* Security personnel trained in human rights policies. *411-1* Incidents of violations involving rights of indigenous people. *MM5* Total numbers of operations taking place in or adjacent to indigenous people's territories and formal agreements made. *MM8* Number (and percentage) of company operating sites where artisanal and small-scale mining (ASM) takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks. *MM9* Resettlement.
People		
Health and safety	Safety performance	*403-2* Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities.
Emergency preparedness and business continuity	N/A	N/A

Material Topic	Sub-topic	Associated GRI indicator
People		
Employee attraction, retention, and development	Employment conditions and benefits Inclusion and diversity Labour relations Non-discrimination and pay equity Training and development	*202-2* Proportion of senior management hired from the local community *410-1* New employee hires and employee turnover *404-1* Average hours of training per year per employee *405-1* Diversity of governance bodies and employees *405-2* Ratio of basic salary and remuneration of women to men *406-1* Incidents of discrimination and corrective actions taken *MM4* Number of strikes or lockouts exceeding one week's duration
Environment		
Water	Water quality Water use	*303-3* Water withdrawal *303-4* Water discharge
Climate, energy, and greenhouse gas emissions	Climate change Energy use Greenhouse gas emissions	*302-1* Energy consumption within the organization *305-1* Direct Greenhouse Gas (Scope 1) GHG emissions *305-2* Energy indirect (Scope 2) GHG emissions *305-3* Other indirect (Scope 3) GHG emissions *305-4* GHG emissions intensity
Biodiversity and mine closure	Biodiversity management Mine closure	*304-1* Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas *304-2* Significant impacts of activities, products, and services on biodiversity *304-3* Habitats protected or restored *MM1* Amount of land disturbed or rehabilitated *MM2* Total sites requiring biodiversity management plans *MM10* Number and percentage of operations with closure plans
Tailings and waste management	Tailings facility management Waste rock dumps and heap leach facilities Industrial and domestic waste management Spills	*306-2* Waste by type and disposal method *306-3* Significant spills *MM3* Total amounts of over burden, rock, tailings, and sludges

Sustainability and our Business

Q&A with Steve Busby, COO

Q: How do Pan American Silver's operations approach sustainability?

A: Our operational approach to sustainability focuses on minimizing environmental impacts, protecting ecosystems and ensuring safe and healthy workplaces. We foster conditions that will provide opportunities for local communities to thrive after a mine closes, such as infrastructure and education for both children and adults. Each year, the personnel at our operations set goals to drive performance improvements in specific sustainability areas. In addition, Pan American Silver's personnel work to develop effective partnerships and collaborations that help advance our sustainability objectives. For example, within the Company our people share innovations in practices and technologies, investing in and adopting those that are suitable for a given mine site's specific conditions. External to the Company, our people work to establish honest, transparent and lasting dialogue with communities, civil society and government, which is critical for building trust and understanding of the diverse issues and opportunities that host communities face. Establishing trust and understanding is a prerequisite to building sustainability programs that can successfully address the particular needs of each host community. This approach has allowed us to deliver positive community-focused programs over the years, resulting in tangible, shared benefits with our host communities.

Q: In 2019, Pan American Silver acquired four additional operations. At an operations level, what do you see as the key sustainability-related opportunities and challenges presented by this acquisition?

A: Pan American Silver's greatest strength has always been its people. The acquisition of Tahoe Resources has given us access to new depths of talent, competence, and expertise. The process has also reinvigorated our workforces at the operations and generated a new level of energy as well as a heightened desire to innovate, address challenges, and contribute to the overall success of the Company. I am particularly impressed with the rapid and successful response of our combined organizations to competently address and enhance significant stormwater runoff control systems at the La Arena, Shuahuindo and Timmins mines during 2019. I look forward to seeing where our highly-motivated teams' energy and enthusiasm will take the Company in 2020 and beyond.

Another opportunity is the ability to leverage existing best practices and innovations from both the Pan American Silver and Tahoe operations, share these across the Company, and improve performance in key areas. For example, the former Tahoe Timmins operation has unique innovations around monitoring – monitoring people, air quality, communications, and equipment. We're already starting to apply these monitoring processes and technologies at other operations, which will help improve efficiencies and keep our workforce safe.

Our biggest challenge this year has been instilling the Pan American Silver values in the former Tahoe mines and reinforcing them at the original Pan American mines. We invested considerable time and effort in training and conversations around values. Our decentralized approach means that our operations are responsible for delivering on the Company's sustainability objectives. In doing so, it is essential that the leadership at each operation understand the Company's values, communicate these values to the workforce, and model these values through decision making and interactions with their stakeholders.

Q: What is the sustainability focus for Pan American Silver's operations in 2020?

A: I am extremely pleased with the advances that operations made in advancing their sustainability goals during 2019, particularly considering the substantial focus on integrating the Tahoe operations and personnel. Operations will again set their own sustainability goals for 2020 guided by our vision of excellence in sustainable development. We will also continue implementing the Mining Association of Canada's Towards Sustainability Mining (TSM) framework and protocols. Our Pan American Silver sites are on track to achieve TSM A levels in 2020, while our newly acquired Tahoe sites are on track to achieve the same by 2022. And, as always, we will continue working to improve our health and safety performance and to advance socio-economic development programs in local communities.

> Pan American Silver's greatest strength has always been its people. The acquisition of Tahoe Resources has given us access to new depths of talent, competence, and expertise.

Sustainability Governance and Management

Board of Directors

Good governance is critical for effective corporate performance and plays a major role in protecting stakeholder interests and maximizing stakeholder value. Our Board of Directors (the Board) oversees the direction and strategy of the business, guided by Pan American Silver's values, legislative and other governance standards, stock exchange rules, and industry best practices. The Board executes overall responsibility for corporate governance matters by:

- Approving corporate policies and guidelines
- Assisting in the definition of corporate objectives, assessing and approving key plans
- Evaluating Company performance on a regular basis
- Ensuring that the Company is led by qualified executives and senior managers

For additional details on our Board's mandate, members, committees, processes, and our corporate policies see our Information Circular or the corporate governance section on our website.

Sustainability Governance Structure

Sustainability is embedded in our vision, values, and business strategy. Governance and oversight of sustainability at Pan American Silver start at the Board level. Our Health, Safety, Environment and Communities Board Committee reviews the Company's sustainability performance on a quarterly basis and reports back to the full Board. From the top level of the organization, accountability for sustainability cascades to our sites.

Sustainability is embedded in our vision, values, and business strategy. Governance and oversight of sustainability at Pan American Silver start at the Board level.

ORGANIZATIONAL ROLES DIRECTLY RESPONSIBLE OR ACCOUNTABLE FOR SUSTAINABILITY PERFORMANCE

BOARD OF DIRECTORS

PRESIDENT & CEO

CORPORATE MANAGEMENT TEAM VANCOUVER

CANADA MANAGEMENT TEAM	MEXICO MANAGEMENT TEAM	GUATEMALA MANAGEMENT TEAM	PERU MANAGEMENT TEAM	BOLIVIA MANAGEMENT TEAM	ARGENTINA MANAGEMENT TEAM
BELL CREEK	LA COLORADA	ESCOBAL	HUARON	SAN VICENTE	MANANTIAL ESPEJO
TIMMINS WEST	DOLORES		MOROCOCHA		
			LA ARENA		
			SHAHUINDO		
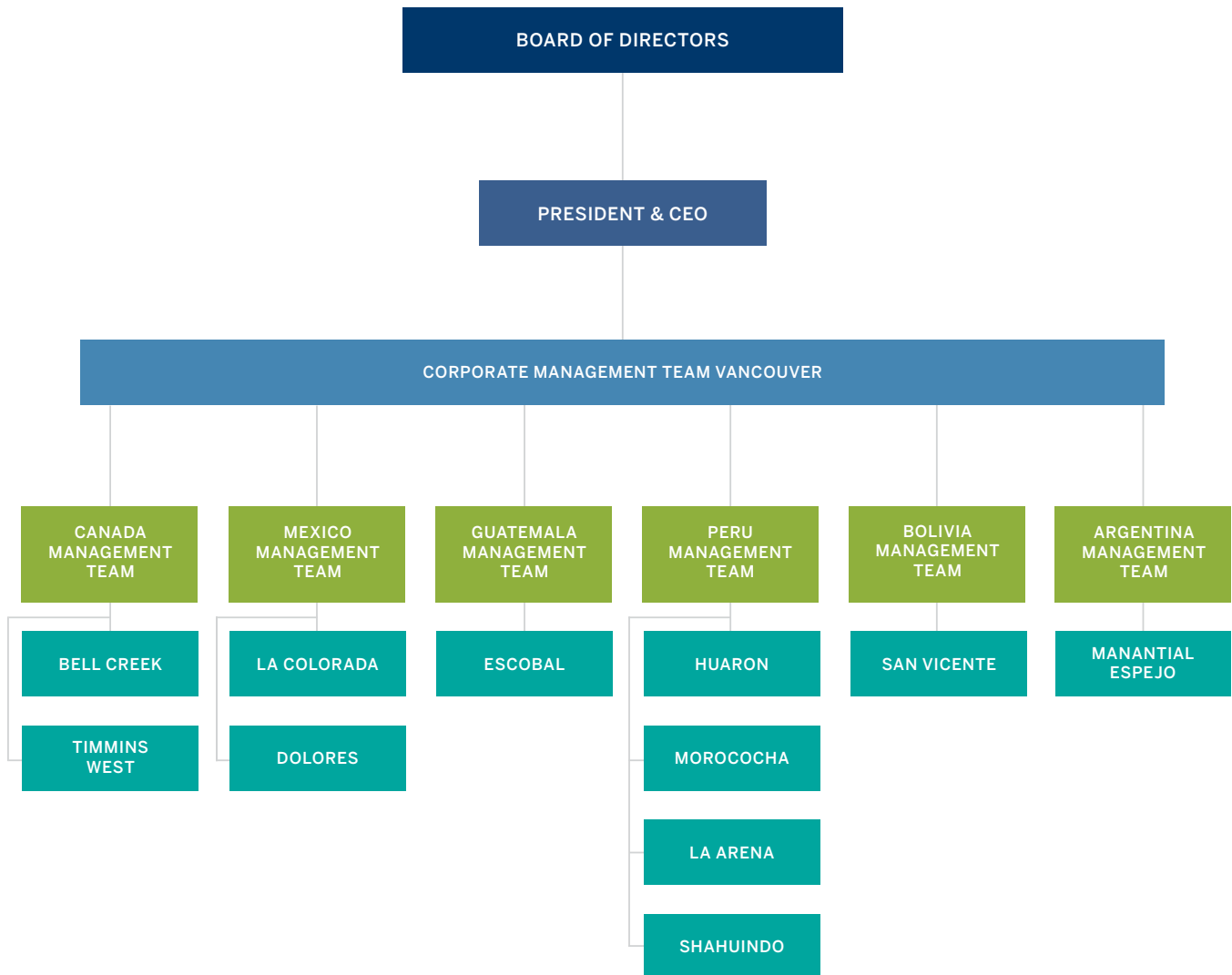
BOARD OF DIRECTORS

- Health, Safety, Environment and Communities Committee provides policy direction and oversight of safety, environmental, and corporate social responsibility matters

- Nominating and Governance Committee oversees the effective functioning of the Board and the implementation of governance best practices.

- Audit Committee provides oversight of financial reporting and disclosures, internal controls, and risk management.

- Human Resources and Compensation Committee oversees human resources, compensation, and succession planning.

CORPORATE MANAGEMENT TEAM

- Senior leadership directs and oversees programs and initiatives related to communities, health and safety, environment and human resources.

COUNTRY MANAGERS

- Country managers oversee and manage sustainability in each of the countries where we operate.

MINE MANAGERS

- Mine managers implement sustainability programs and initiatives and supervise teams responsible for community relations, environment, safety, and human resources.

Sustainability Management and Integration

Our corporate policies translate our vision and values into specific commitments, which we implement within our Sustainability Pillars.

Our sustainability management implementation system provides us with a consistent approach to operating in an ethical and responsible manner in compliance with applicable laws and industry best practices. The system is designed to consider the external factors that affect our industry, including market uncertainties and increasingly demanding political, economic, environmental and social circumstances. We do not control these external factors but have developed an approach to help us navigate risk and deliver value to all COIs.

OUR PILLARS

Pillar	Description
Community Investment & Sustainable Development	Contributing to the social and economic well-being of local communities
Health & Safety	Protecting the health, safety and well-being of our employees, contractors
Human Rights	Respecting human rights and managing our potential impact on rights holders
Water	Managing the impacts of our activities on water quality and availability
Employee Attraction, Retention & Development	Creating the right conditions to attract, develop, and maintain a talented and engaged workforce
Climate & Energy	Minimizing our energy consumption and greenhouse gas emissions
Business Ethics & Anti-Corruption	Ensuring good corporate governance through ethical business practices and anti-corruption measures
Biodiversity & Mine Closure	Mine closure planning and biodiversity management to minimize negative impacts on the environment
Tailings & Waste	Responsible management of tailings facilities and waste

VISION
To be the world's premier silver producer, with a reputation for excellence in discovery, engineering, innovation and sustainable development.

VALUES
Our values set the standard for how we operate as a business.

Operating in a responsible and ethical manner that complies with applicable laws, rules and regulations.
Providing a safe and healthy workplace for all of our employees and contractors.
Conducting our business affairs free from favouritism, fear, coercion, discrimination or harassment.
Providing full, fair, accurate, timely and understandable disclosure to all regulatory bodies, stakeholders and employees.

CODE OF CONDUCT
Our Global Code of Ethical Conduct sets out key principles and expectations for ethical business conduct in how we operate and interact each other and our Communities of Interest.

POLICIES
Our policies translate our values into specific commitments.

SYSTEMS
Our systems and standards incorporate best practices and provide consistent guidance to sites for managing our sustainability foundations.
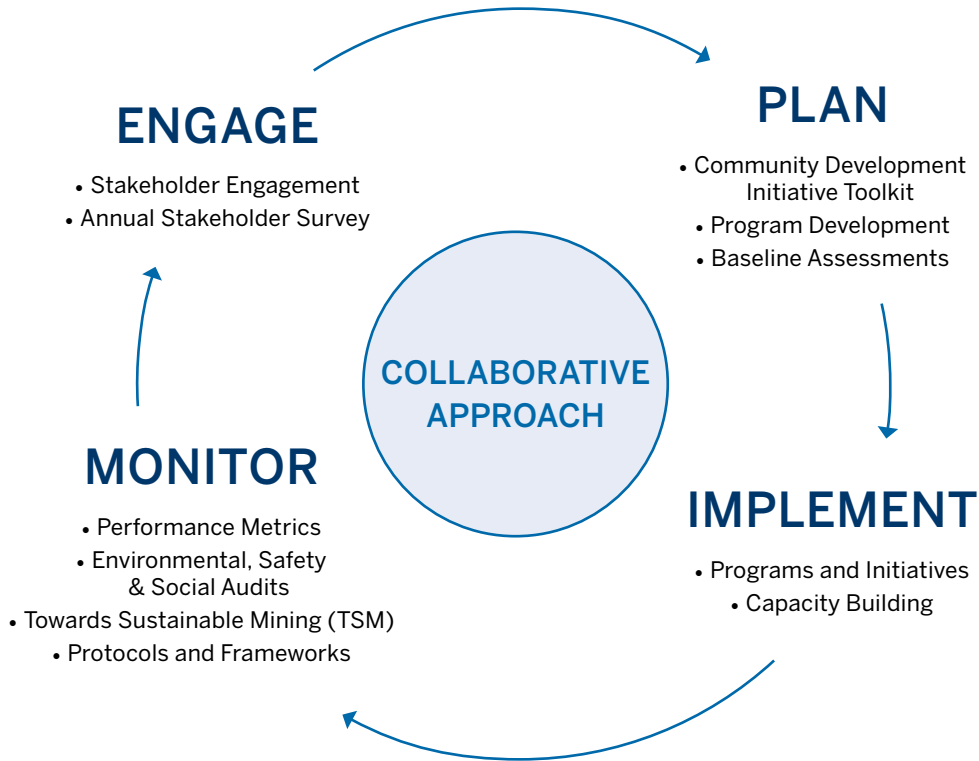
PILLARS
Our focus is on managing performance in these areas: Community Investment & Sustainable Development; Health & Safety; Human Rights; Water; Employee Attraction, Retention & Development; Climate & Energy; Business Ethics & Anti-Corruption; Biodiversity & Mine Closure; Tailings & Waste

Sustainability Implementation Strategy

We use a modified plan-do-check-act cycle to ensure our programs and initiatives align with our vision and values, mitigate our impacts, and contribute to long-term sustainability in communities.

SUSTAINABILITY MANAGEMENT FRAMEWORK

ENGAGE
- Stakeholder Engagement
- Annual Stakeholder Survey

PLAN
- Community Development Initiative Toolkit
- Program Development
- Baseline Assessments

COLLABORATIVE APPROACH

MONITOR
- Performance Metrics
- Environmental, Safety & Social Audits
- Towards Sustainable Mining (TSM)
- Protocols and Frameworks

IMPLEMENT
- Programs and Initiatives
- Capacity Building

Sustainability Goals

Pan American Silver sets annual sustainability goals that are largely established by our senior management group including the operations. This encourages a high level of understanding and commitment by those who carry out our day-to-day business activities. Our 2019 goals and performance against these goals can be found within the relevant material section.

Sustainable Development Goals

Launched in 2015 and adopted by all United Nations' (UN) member states, the Sustainable Development Goals (SDGs) are the core component of the UN's 2030 Agenda for Sustainable Development, designed to transform the world by overcoming barriers to economic, social, and environmental progress.

The mining industry has enormous potential to drive future progress on the SDGs, as mines are often situated in remote and developing regions where achievement of the SDGs can have large and lasting positive impacts. Pan American Silver is committed to contributing to the achievement of the SDGs. Our programs in support of the SDGs are described throughout this report. A full list can be found on our website.

Sustainability Challenges and Opportunities

Q&A with Brent Bergeron, Senior Vice President, Corporate Affairs and Sustainability

Q: Since joining Pan American Silver in 2019, what do you see as the Company's key sustainability challenges and opportunities?

A: Pan American Silver faces many of the same key challenges as those faced by other international mining companies. We are under constant pressure to be more efficient and productive, and at the same time make our operations safer and improve our environmental and social performance. We have operations in areas subject to political, and therefore economic and social instability, which underscores the importance of on-going dialogue and building trust with host communities, NGOs, and governments. We must continuously demonstrate an ability to provide value to broader stakeholders.

One of the biggest opportunities for us going forward is to develop a more systematic approach to managing, measuring, and monitoring our sustainability objectives and sustainability risks. Pan American Silver has traditionally been a decentralized company with a strong sense of entrepreneurship. This structure has allowed operations to be responsive to local issues and to create successful context-specific sustainability programs and innovations. In the past year, we doubled our size and expanded geographically, so it is vital for us to implement systems that enable all of our operations to meet global sustainability standards and stakeholder expectations. This will help us manage risk, maintain credibility, and be successful in the long term.

Q: How is the mining industry responding to critical sustainability issues such as climate change?

A: Progressive mining companies recognize the need to move away from traditional ways of doing business. I see technology and innovation as offering the greatest potential for the industry to respond in a meaningful way to sustainability challenges, while at the same time meeting business objectives. For example, we can electrify mining equipment traditionally powered by diesel. This not only reduces greenhouse gas emissions, but it can also reduce operating costs. There are benefits to workers' health as well, such as improvements in underground and/or local air quality and reductions in mine noise.

When considering innovation, it will be increasingly important for companies to look for the overlap of business and community objectives. For instance, reducing freshwater consumption through reuse or recycling or using new processing technologies can create efficiencies and lower operating costs. By collaborating with communities on water management, we can find ways to support community goals and alleviate concerns around competition for water.

Fundamental changes are necessary to address these global issues, but they won't come about unless we share innovations, commercialize successful technologies, and collaborate with local communities, peers, governments, and supply chain partners.

Q: What sustainability initiatives does Pan American Silver have planned for 2020?

A: We are always looking for ways to improve our sustainability performance. In the coming years, operations will continue their work to attain A-levels on all protocols of the Mining Association of Canada's Toward Sustainable Mining initiative. We will also continue our work to put our new Human Rights Policy into practice.

In response to growing demands for transparency around environmental, social and governance (ESG) performance and reporting, we're also looking to strengthen relationships with our ESG-focused investors. We want to demonstrate to our investors, and to our other stakeholders, that we are continuing our efforts to decrease project risks by applying the highest ESG standards across our organization. To create a forum for discussion with these investors, we plan to hold our first ESG investor call in 2020.

ESG Performance

With responsible investing on the rise, companies like ours are increasingly being asked to respond to requests for ESG information and performance data. Those investors seeking this information have broadened beyond just those with a socially responsible mandate. A mining company's reputation and potential for growth depends on its proven ESG record.

Excellence in ESG performance and reporting is a central component of Pan American Silver's approach to long-term sustainability. We welcome the growing interest in responsible investing. We work hard to bring a project to life in the right way, which means building trust and partnerships with local communities and governments. We are focused on improving our sustainability disclosures, providing additional information on our practices and moving towards more integrated reporting. We aim to better demonstrate how our approach allows us to manage risks, drive value, and operate successfully over the long term.

We are also taking steps to strengthen our relationships with ESG investors and analysts by creating more opportunities for dialogue. Pan American Silver will hold its first ESG investor call on September 14, 2020.

> One of the biggest opportunities for us going forward is to develop a more systematic approach to managing, measuring, and monitoring our sustainability objectives and sustainability risks.

**INVESTORS //
SAVE THE DATE**

Pan American Silver

Responsible Investor
Conference Call:
A Conversation on ESG

September 14, 2020

Additional information and webcast will be made available at:
panamericansilver.com

COMMUNITIES

Communities

Fostering positive long-term relationships with local communities is a key component of our business strategy.

We pursue it through open and honest communication and ethical and sustainable business practices. Our aim is to support host communities during the lifespan of our mine and create a positive legacy.

2019 Performance Highlights

2019 Goals - Social	2019 Results	2019 Performance	2020 Goals
Achieve zero significant social conflicts at our operations through engagement, resolving grievances, and social auditing.	✔	We achieved zero significant social conflicts at our operations in 2019.[1]	Achieve zero social conflicts at our operations through engagement, resolving grievances, and social auditing.
Continue to expand our community engagement activities through greater participation in our corporate survey and more in-depth engagement in our CSR projects.	✔	We increased COI participation in our annual survey from 645 in 2018 to 1146 in 2019. Our Peruvian sites updated their baseline with participation of the communities. With participation of the families in the mining camp, our team at San Vicente designed a program to improve hygiene, sanitation practices, and living conditions.	Continue to expand our community engagement activities through greater participation in our corporate survey and more in-depth engagement in our CSR projects.

(1) Prior to our acquisition of Tahoe Resources, the Escobal's operation's mining license had been suspended pending the completion of an International Labour Organization (ILO) 169 consultation process mandated by the Constitutional Court of Guatemala. The mine is presently on care and maintenance pending the completion of the consultation. See page 52 for more information.

Managing Social Impacts

Early and ongoing community engagement and meaningful dialogue form the foundation of our approach to better understanding the actual, potential, and perceived impacts of our activities on and building trust with host communities.

We have adopted formal policies, procedures, and industry best practices to manage our impacts and contribute to the social and economic development of these communities. Each country and community in which we operate has a distinct culture and social context. While our management framework provides a consistent methodology for measuring and tracking social impacts and our corporate social responsibility (CSR) performance across our mines, it also offers the flexibility needed to tailor our approach to the particular circumstances of each operation.

OUR SUSTAINABILITY MANAGEMENT APPROACH

ENGAGE

Community Teams

Each mine site has a community office and team responsible for ongoing engagement.

Materiality Survey

We gather information annually on issues that are important to our COIs as well as their perceptions of our performance.

Response Mechanisms

Each community office maintains a response mechanism, which helps us understand and respond to community questions or concerns around the perceived or actual impacts of our activities.

PLAN

Participatory Baseline Assessments

We conduct assessments jointly with communities and third parties to:

- Understand the current social context within and the potential impacts of our operations on the host communities
- Identify and map relevant COIs, including vulnerable groups who may be disproportionately affected by our activities
- Identify programs appropriate for the social context of the communities

Community Development Initiative Tool

Our tool helps sites work collaboratively with local communities when developing socio-economic projects and programs.

IMPLEMENT

Programs and initiatives

Our programs, designed in collaboration with communities, are intended to provide sustainable benefits for these communities, promote local hiring and procurement, and support new or ongoing infrastructure or services.

Capacity Building

Training

We train our local teams on systems and procedures to manage potential impacts and align our socio-economic development programs with community needs and aspirations.

Education

We educate employees and community-based service providers about our expectations regarding ethical, safety, environmental, and CSR standards.

MONITOR & EVALUATE

Social audits

We conduct social audits at each mine biennially to monitor the programs we run in partnership with neighbouring communities, to assess our contractors' camps and facilities, and to identify opportunities for improvement.

Towards Sustainable Mining (TSM) Aboriginal and Community Relationship Protocol

Our sites self-assess their performance against this protocol and develop corresponding action plans for improvement.

ACCOUNTABILITY

Site-level community teams are responsible for ongoing engagement and program implementation, which is overseen by the head of social sustainability at the site or country level.

The Vice President of Social Sustainability, Inclusion and Diversity leads sustainable development programs and initiatives, which are overseen by the Senior Vice President, Corporate Affairs and Sustainability.

The Human Rights Officer reports to the General Counsel and oversees implementation of the Human Rights Policy and related programs.
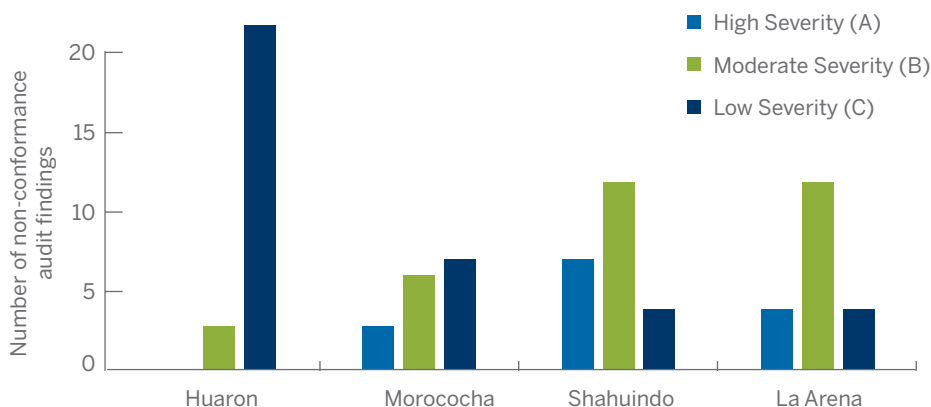
Our Performance

Social Audits

We conduct social audits to help us monitor our social footprint and manage our performance. The audits are conducted by community team employees from across the Company. Our audit framework is based on the ISO 26000 guidance standard on social responsibility and incorporates content from:

- Pan American Silver policy commitments
- Industry standards and requirements
- Towards Sustainability Mining (TSM) Aboriginal and Community Outreach Protocol
- United Nations Guiding Principles on Business and Human Rights
- UNICEF Canada's Child Rights and Security Checklist
- Voluntary Principles on Security and Human Rights

In 2019, we took steps to improve our social audit framework by expanding the scope of the audit content to include additional human rights best practices and standards, such as the Voluntary Principles for Security and Human Rights and the UN Guiding Principles on Business and Human Rights, as well as the TSM Protocol on Community and Aboriginal Outreach, which covers aspects such as community engagement, stakeholder mapping, and response mechanisms. The framework was also reviewed by departments outside the sustainability function to make it more inclusive of issues encountered in everyday aspects of the business.

We completed social audits of our four Peruvian mines: Shahuindo, La Arena, Huaron, and Morococha during 2019. The primary findings included the need to improve conditions at camp facilities at the recently acquired Shahuindo and La Arena mines by increasing camp space, improving ventilation, and implementing additional hygiene practices in the kitchens. These issues are currently being addressed through changes in procedures and making additional investments in the facilities. In 2020, we plan to conduct social audits at our operations in Bolivia, Argentina and Mexico.

In 2019, we took steps to improve our social audit framework by expanding the scope of the audit content to include additional human rights best practices and standards.

SOCIAL AUDIT PERFORMANCE

Legend:
- High Severity (A)
- Moderate Severity (B)
- Low Severity (C)

Y-axis: Number of non-conformance audit findings

X-axis categories: Huaron, Morococha, Shahuindo, La Arena

(1) High Severity (A) applies to non-conformance audit findings that may have a critical impact on the Company's reputation and/or a high economic impact.
(2) Moderate Severity (B) applies to non-conformance audit findings that may have a moderate impact on the Company's reputation, and/or a potential economic impact.
(3) Low Severity (C) applies to non-conformance audit findings that have a low potential impact on the Company's reputation.

1. PLAN

Audits assess the impacts of our activities on our workers and communities and in our immediate supply chains. Audit content is based on international best practices and industry standards.

2. CONDUCT AUDIT

Audit team visits the site, conducts interviews, gathers data, and validates evidence.

SOCIAL AUDIT PROCESS

Our social audit covers:

Labor Practices
(camp conditions, contracts, security, child and forced labour)

Community Relations Capacity
(corporate values, pillars, performance)

Community Engagement
(socialization of policies, program effectiveness, communication)

3. ANALYSE RESULTS

Audit team evaluates results and classifies findings by area and severity of non-conformance and identifies opportunities for improvement in processes and programs.

4. REPORT

Audit team reports findings to site- and country-level management.

6. MONITOR

Site report quarterly on the status of action plans. Plan status and audit results are reviewed by the Chief Operating Officer (COO) and Board of Health, Safety, Environmental and Communities (HSEC) Committee.

5. ADDRESS FINDINGS

Sites develop action plans to address the non-conformances and implement improvements.

Community Engagement

The communities near each of our mines have distinct social and environmental contexts. It is important for us to engage in open dialogue early in the mining lifecycle and maintain this engagement through to mine closure. Engagement and dialogue also help us understand the priorities and concerns of host communities, which helps us manage community expectations as well as our actual and perceived impacts.

Baseline assessments are a foundational tool for our work, helping us understand the socio-economic realities of local communities. In recent years, we have been working to make our baseline assessments more participatory. Not only does this improve the ways in which we communicate and engage with host communities, but it also helps us better understand their needs and interests. With broader and better information, we can design or refine our community-focused programs to be more community specific and responsive.

Community Response Mechanisms

Our response mechanisms provide a means through which community members can engage with our mining operations. Community members can submit questions, requests, concerns and/or grievances to us through a community mailbox or in person at our community offices. All requests or grievances are logged by the community office and a company employee is assigned to follow up. If that individual cannot respond to the request or resolve the grievance within 15 days, senior management is assigned to address the issue. Significant disputes are grievances that cannot be resolved jointly within a reasonable time frame, and/or that require significant financial resources to resolve. These disputes are escalated to site-level or country-level senior management to oversee the resolution process. Community teams report progress and outcomes monthly to the Vice President of Social Sustainability, Inclusion and Diversity. The effectiveness of these mechanisms is evaluated through our social audit system.

REQUESTS AND GRIEVANCES IN 2019[1]
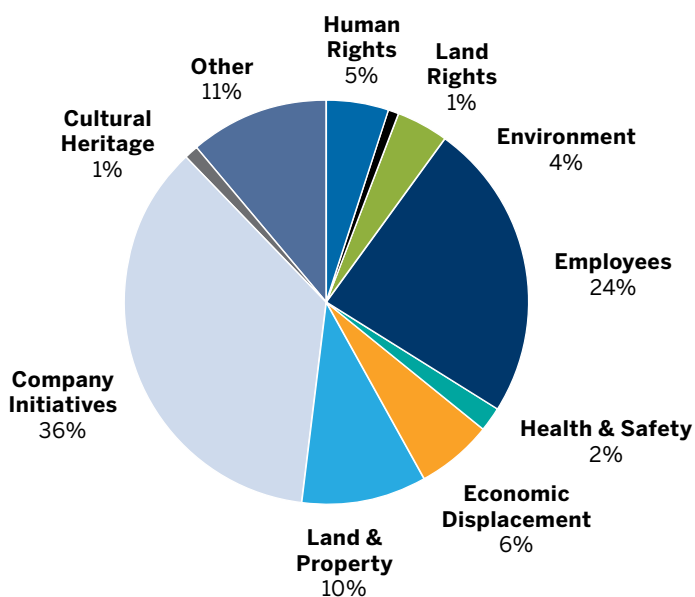
(1) Includes requests and grievances for operating mines only.

In recent years, we have been working to make our baseline assessments more participatory. Not only does this improve the ways in which we communicate and engage with host communities, but it also helps us better understand community needs and interests.

GRI: 413-1

Response Mechanism Process

In 2019, we received 295 requests or grievances and closed 207 of these [1]. The majority of cases that remain open are either in progress or are requests for donations or socio-economic projects that are under review by site-level teams. The most common grievances received fell into the categories of human rights, land rights, environment, employees, health & safety, economic displacement, land & property, company initiatives, cultural heritage and others.

In 2019, we focused efforts on improving the alignment of our site-level response mechanisms with the UN Guiding Principles and TSM protocol requirements, formalizing our procedures and improving our metrics and tracking. This will improve our accountability and community responsiveness. It is our hope that these steps will, in turn, foster greater trust in and use of the system by community members.

Our annual stakeholder consultation in 2019 indicated the need for grievance systems not only in the communities, but also in the workplace. As many of our workers come from the local community, a workplace response mechanism will provide a second channel through which community members can communicate with us. We plan to pilot this response system at all of our mines during 2020.

Community Disputes

From time to time disputes arise with our communities that are not managed through our response mechanism. In 2019 we worked to address two on-going disputes at La Colorada and Escobal.

As part of an expansion at La Colorada in 2015, we built new camp facilities and re-accommodated workers, as well as a group of families who were not workers but lived on our property in substandard housing. A small group of these remaining families filed a land rights claim in the Mexican Agrarian Court and also engaged the United Nations Office of the High Commissioner for Human Rights in Mexico City (OHCHR). We have been proactively working with the OHCHR and the families affected to resolve the issues. In 2018, during a site visit the OHCHR identified areas of concern and opportunities for improvement from a human rights perspective. These included: improving water, electricity and facilities access, and changes to physical security infrastructure. Pan American Silver took immediate steps to address these issues and we continue to work towards a final resolution with the remaining families still living in the Company's camp facilities.

Since 2017, protesters have blockaded various roads to our Escobal mine in Guatemala. The mine is currently on care and maintenance while the government of Guatemala conducts an International Labour Organization (ILO) 169 consultation process. Although the issues giving rise to the blockades predate our ownership of Escobal, we are engaging with community leaders, government agencies, and NGOs to develop a productive dialogue process aimed at resolving this protracted dispute and reaching a peaceful conclusion and community relationship.

In 2019, we focused efforts on improving the alignment of our site-level response mechanisms with the UN Guiding Principles and TSM protocol requirements, formalizing our procedures and improving our metrics and tracking.

GRI: MM6, MM7

Economic Benefits

Q&A with Rob Doyle, CFO

Q: What's the relationship between finance and sustainability?

A: Finance is an integral part of sustainability. Being a financially healthy and stable company allows us to contribute both directly and indirectly towards meeting our sustainability goals in the regions where we operate. For example, we pay taxes, royalties, and fees to local governments, and those payments can be invested back into social programs and community infrastructure. Hiring locally and providing competitive wages also serves to stimulate local economic activity in regions where we operate.

What's interesting now, however, is the growing recognition that investments in sustainability make good financial sense – by lowering risk, attracting capital, and gaining social acceptance. Pan American Silver has always seen community-focused programs as essential to success. As an example, we procure the vast majority of the products and services we need for our business from local suppliers. Investing in capacity building of local businesses helps those businesses improve their practices. Working with those businesses helps us build community relationships as well as a more cost-effective and resilient supply chain. We also work with host communities to identify, create, and support sustainable development programs, which helps us to better understand the needs and priorities of those host communities. These initiatives improve local quality of life, which, in turn, is key to building and maintaining the community support we need to operate in the long term.

Q: How does Pan American Silver's business impact local economies and communities?

A: I take great pride in the positive economic impacts our Company has on the communities and areas around our operations. Our need for skilled labour translates into jobs and business opportunities for host communities. We hire locally and provide our workforce with competitive wages and benefits. Whenever possible, we procure goods and services locally for mine operations and maintenance. We also provide training and capacity building to local companies providing services and supplies to our mines, which can mean long-term employment opportunities for the companies. With our acquisition of Tahoe Resources in early 2019, our socio-economic development programs were extended to the communities near our new sites. We work hard to make sure we leave a legacy of economic benefits that extend beyond the life of our mines.
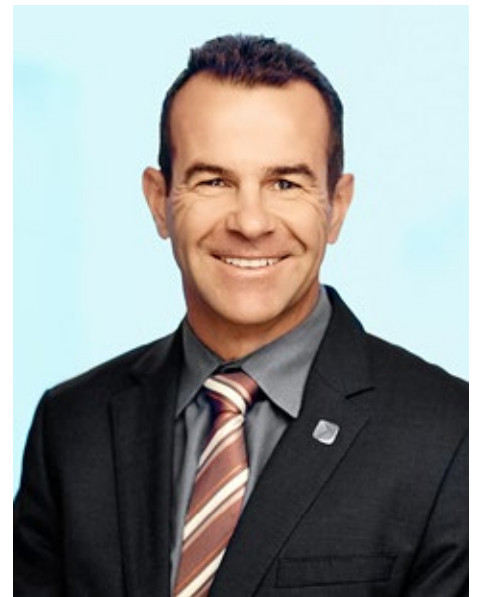
Q: How have investors' demands for greater transparency and accountability on topics related to environmental, social, and governance (ESG) performance affected Pan American Silver and the mining industry?

A: ESG is becoming increasingly important to investors. We're at a point where interest in ESG information comes not only from institutional or socially responsible investors, but also mainstream investors. It makes good financial sense for investors to want an understanding of how a mining company manages its key sustainability risks, namely, climate change, water, tailings, community and government relations, and tax transparency. In the future, the investment community will place increasing importance on ESG performance. Pan American Silver has long held strong ESG performance as a fundamental part of our business. Personally, I welcome more diligent ESG standards, which will bring greater focus and should then translate into improved sustainability performance across the industry.

As part of our evolving approach to ESG performance, Pan American Silver supports the approach presented in the Task Force on Climate related Financial Disclosure (TCFD) recommendations. We are working towards implementing TCFD recommendations and will publish a TCFD report in 2021. We are committed to doing our part to reduce our carbon footprint by setting realistic short and medium term targets, improving our existing public disclosure, and ensuring that climate risks are incorporated into our business plan.

> Pan American Silver has always seen community-focused programs as essential to success.

Community Investment and Sustainable Development

Why are community investments and sustainable development important?

Mining companies can have significant economic impacts in their host countries. Mining companies are under increased pressure to provide value to a broader range of communities of interest (COIs), in particular to the communities located near their operations. The support of these communities is essential for continued operation and can help companies avoid disputes and project or operational delays or disruptions. Companies create value in local communities through taxes, royalties and fees paid to governments, direct investments in community programs, development planning and infrastructure, and local hiring and procurement. At Pan American Silver, we want host communities to see our presence as a positive factor in their lives. We work hard to understand community needs and interests and identify beneficial and viable legacy social programs and community investments opportunities.

Material Topic	Community investment and sustainable development
Sub-Topic	Economic impacts
	Socio-economic development programs
	Infrastructure investments
	Local hiring and procurement
Definition	Contributing to the social and economic well-being of local communities
Feedback From COIs	Community members request local employment opportunities.
How We're Responding	Our Social Sustainability teams work with community members to identify potential job opportunities and provide the necessary training and capacity building.

POTENTIAL RISKS AND IMPACTS

Community opposition to mine operations or development resulting in project or production delays, loss of or failure to obtain permits, and/or loss of social acceptance

Potential negative impacts in the industry could create economic dependence by or wealth disparity within local communities, or harm to vulnerable groups

Political, social, and economic instability

RELATED SDGS

1 NO POVERTY

2 ZERO HUNGER

8 DECENT WORK AND ECONOMIC GROWTH

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

2019 Goals

2019 Goals - Social	2019 Results	2019 Performance	2020 Goals
Improve access to quality education in the communities near our mines	✓	Our team at Dolores worked with the community of Arroyo Amplio to encourage the return of essential services to the community, who had left due to local security incidents unrelated to the mine.	Improve access to quality education in the communities near our mines
Improve access to health care in the communities near our mines	✓	We continued with our health campaigns and added special campaigns at San Vicente on AIDS and Human papillomavirus protection. We ran health campaigns in La Colorada COIs.	Improve access to health care in the communities near our mines
Develop additional alternative economic opportunities in communities near our mine	✓	We are developing a program around alpaca breeding that will involve 500 producers compared to only 50 in the previous program. We extended the local vegetable production through the greenhouse program in Bolivia until 2020.	Develop additional alternative economic opportunities in communities near our mines

Our Approach

We invest a significant portion of our economic value generated back into host countries and local communities in line with our sustainability pillars. Our social management framework provides the processes and tools we need to recognize and manage our actual and perceived impacts, understand community needs and interests, and identify opportunities for long-term investment in local communities.

Programs and initiatives:

- Socio-economic development programs – We create and sustain programs focused on education, health, and alternative economic opportunities.

- Local infrastructure and services – We invest in and upgrade infrastructure and services such as schools, health facilities, water, and sanitation.

- Jobs and business opportunities – We hire and procure locally and provide training and capacity building in roles at or related to our operations.

- Community Development Initiative (CDI) Tool – We use this tool to identify and develop socio-economic programs with a high likelihood of long-term success and measure these programs' impacts.

Our Performance

Economic Value Generated and Distributed

Our core business activities generate economic value for COIs at the international, national, regional, and community levels, both directly and indirectly. Our direct investments include wages paid to employees, community investments, and payments to government in the form of taxes, royalties, and fees. Payments to government can be reinvested in social and economic programs that benefit the communities and regions where we operate.

DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED
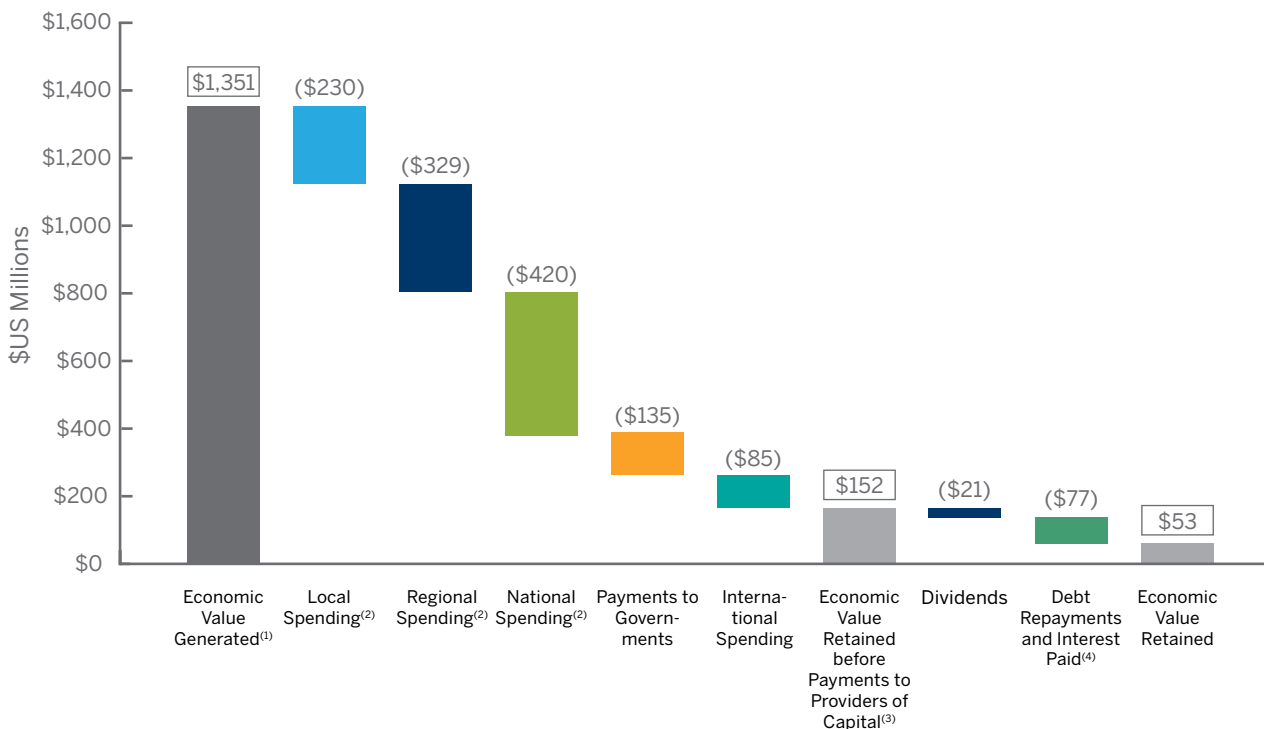
(1) Based on 2019 accrued revenue as per annual Financial Statements for fiscal 2019, dated March 12, 2020. Financial metrics for Shahuindo, La Arena and Timmins are as of the acquisition date, February 22, 2019.

(2) Local refers to the expenditures in communities within the direct area of influence. Regional captures expenditures in the indirect areas of influence within surrounding regions. National includes all other areas within a country that are excluded from either local or regional. Local, regional and national expenditures include wages, supplies and services, and community investments.

(3) This is the economic value retained by the company after expenditures from mining activities, but prior to distributions to providers of capital (shareholders and debtholders). Expenditures from mining activities include production costs, royalties, general and administrative expenditures, exploration and project development, mine care and maintenance, income taxes paid, payments for mineral properties, plant and equipment and payment of lease obligations as described in the annual Financial Statements for fiscal 2019, dated March 12, 2020. Production costs exclude purchase price allocation inventory fair value adjustments and NRV inventory adjustments.

(4) Excludes $335M drawn from our revolving credit facility for the acquisition of Tahoe, and $125M paid to cancel Tahoe's revolving credit facility.

SPENDING BY COUNTRY

$US Millions

$500		
$375	Peru $455.7	
$250	Mexico $363.8	
$125		Canada(1) $145.8
0	Bolivia $71.0	Argentina $106.2	Guatemala $19.3

Mexico   Peru   Bolivia   Argentina   Canada(1)   Guatemala

Community Investments
Taxes & Royalties
Suppliers & Services
Wages & Benefits
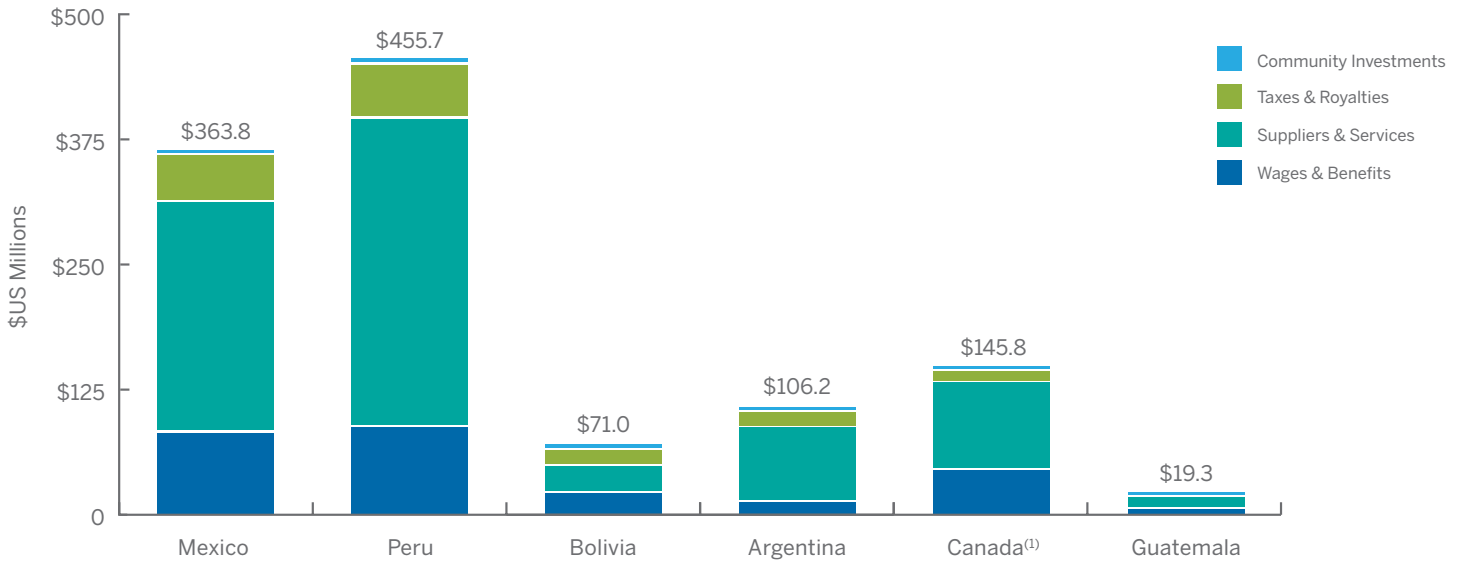
(1) Canada amounts only include expenditures from Timmins mines, and exclude Corporate expenditures.

COMMUNITY INVESTMENT AND SUSTAINABLE DEVELOPMENT

COMMUNITY INVESTMENT AND SUSTAINABLE DEVELOPMENT

- SOCIO-ECONOMIC DEVELOPMENT PROGRAMS
- INFRASTRUCTURE AND SERVICES INVESTMENTS
- LOCAL HIRING AND PROCUREMENT

Socio-economic Development Programs

We invest in socio-economic development programs that provide lasting benefits to host communities. Our mines have limited lifespans, and as automation and mechanization increases, fewer direct jobs are available for community members. Consequently, we prioritize programs related to education, health, and alternative economies, which we have found to provide long-term positive benefits. Our intent is that the benefits will long exceed the lifespan of our mines.

Following our acquisition of Tahoe Resources, we conducted a review of our community investment and sustainable development programs with the objective that every program:

- addresses community needs and interests
- is implemented with the acceptance and involvement of the community
- is appropriate to the local social context
- considers mine closure
- incorporates key performance indicators

We invest in socio-economic development programs that provide lasting benefits to host communities.

Local Economic Development Projects

Our alternative economic development programs support local communities, families or groups in creating or sustaining economic opportunities not directly related to our mines. These programs are developed in consultation with local communities. We provide equipment, tools, supplies, capacity building, training, and other support for a specific duration of time, with the aim that these programs will be self-sustaining beyond our involvement.

Our local economic development projects include:

- Nutritional Greenhouse Program, Bolivia – provided supplies, training, and capacity building to 436 community members from 11 local communities for sustainable food production, access to fresh produce, and improved family nutrition.
- Passion Fruit Project, Peru – provided 73 passion fruit producers with training on efficient irrigation techniques to improve passion fruit production in Shahuindo. This program indirectly supported 272 community members.
- Guinea Pig Program, Peru – constructed sheds and provided technical assistance to 394 local producers and their families to increase guinea pig production in Chungales, Raumate, La Arena and La Unión.

Education

Education helps prepare individuals for life and is key to career success. Wherever possible, we guide and support students to pursue careers that will allow them to return to their communities and provide much needed services. Our education programs include:

- Child and adult literacy and education programs
- Scholarship programs for university students
- Support for or payment of teachers' wages
- Career counselling for secondary students

In 2019, we provided university scholarships for 196 students in the countries where we operate. In total, our programs provided direct and indirect support to 8,277 students.

Health

Our health programs are intended to facilitate access to health services for all community members, with an emphasis on identified vulnerable groups such as young children, women, and elders. Our programs include:

- Health campaigns that provide training and education on issues such as nutrition and hygiene and health services such as dental check-ups and vaccinations
- Funding for doctors and health care practitioners
- Provision of medical care in communities with limited or no access

Wherever possible, we guide and support students to pursue careers that will allow them to return to their communities and provide much needed services.

Infrastructure and Services Investments

Some of our operations are near communities that have basic services and amenities whereas others are in remote, sparsely populated regions with little or no infrastructure. We regularly make investments in and upgrades to local infrastructure and social services in the communities near our operations. In 2019, our infrastructure initiatives included:

- Construction of a bridge in Chuquibamba in Shahuindo
- Construction of one Health Unit in La Arena community
- Rehabilitation of school facilities in Orion, Las Tapia and La Colorada
- Rehabilitation of school facilities in Moyan Alto, Moyan Bajo, La Fila, Huajo, Chorobamba and Malcas near our Shahuindo mine
- Construction of river flood defence works for six communities near our Shahuindo mine

Local Hiring and Procurement

Given the remote location of some of our sites, our operations may provide one of the few opportunities for long-term, stable employment in the area. Consequently, community members look to us to provide jobs through direct employment or as service providers for our mine sites. In 2019, 99% of our employees were nationals of the country where the mine is located.

Our procurement practices also create opportunities for local businesses. We purchase a substantial amount of necessary goods and services from within national economies. We also help community members launch and/or sustain small businesses by matching a site's business needs to the interests of community members. This approach supports our ability to operate profitably over the long term by deepening our sites' relationships with local suppliers, providing a higher level of service, and helping us build a more resilient supply chain. In 2019, 48% of goods and services were provided by local or regional suppliers. Our mines currently provide support for 558 small businesses.

Key goods and services sourced locally include:
- Materials for road construction
- Machinery and small parts
- Food and catering services
- Maintenance services
- Earthmoving equipment for road maintenance and smaller construction projects

Where local suppliers cannot meet our needs or business standards, we invest in their capacity by offering programs and support focused on:
- Business skills, such as accounting and bookkeeping
- Bidding processes
- Pan American Silver's business standards and expectations
- Health and safety training for contractors
- Health and addiction workshops

Next Steps

- Continue to improve existing processes, such as our COI mapping systems and response mechanisms at all our operations and align with the Towards Sustainable Mining (TSM) guiding principles
- Update indicators to measure the social impact of our programs based on participatory baseline assessments
- Continue to conduct social audits to evaluate the effectiveness of our social management systems and the implementation of our CSR and Global Human Rights policies

GRI: 201-1, 203-2, 204-1

Passion Fruit Project - Shahuindo Mine

Pan American Silver's alternative economic development programs are intended to support local communities in creating or sustaining economic opportunities not directly related to our mines.

Programs are designed to respond to needs and challenges identified by the community and be self-sustaining, beyond the program's duration.

In 2017, the Shahuindo mine initiated an alternative economic development program designed to support farmers within Shahuindo's direct area of influence by providing them with the technical skills to increase passion fruit production and bolster the fruit market in the Cajabamba Province, Cajamarca Region. The three-year program was based on an agreement with the Peru's Northern Institute for Research and Social Promotion (IDIPS), and co-financed by the Peruvian Government through the Fondo Empleo Program.

Identified Challenges	Limited availability of freshwater for agricultural activity
	Local climate and growing conditions
	Limited awareness of or access to modern agricultural production methods
	Lack of coordination among farmers
	Inability of small farmers to meet supply demands of the regional market
Program Objectives	Promote alternative economic activities appropriate for the local climate and land conditions
	Increase the income of local farmers
	Promote the efficient use of freshwater and organic farming practices
	Build the capacity of local farmers to use new agricultural production technologies
	Enhance the business management skills of local farmer

The Northern Institute for Research and Social Promotion provided the technical support and training, which focused on the use of modern agricultural practices, such as building geomembrane micro-reservoirs for efficient irrigation. Training also promoted the use of organic farming practices, with the intention that farmers could obtain organic certification in the future. Shahuindo also helped to formalize the farmers' cooperative, Redes Unidas, which sells the collective produce of local farmers to the regional market in sufficient quantities to meet requirements. The cooperative is key to facilitating the commercialization of fruits on a larger scale.

The project ended in December 2019. Key achievements included:

- Alternative economic activity and income for 73 farming families
- Construction of 73 geomembrane micro-reservoirs, 20m3 each
- Cultivation of 15.5 hectares and production of 13,214kg of passion fruit
- Development of a farmers' cooperative and increased passion fruit commercialization

Engaging with Indigenous People

Pan American Silver recognizes and respects the rights, cultures, heritage and interests of Indigenous Peoples. We are committed to building and maintaining positive relationships with Indigenous groups through on-going engagement and identification of mutually beneficial opportunities. One way in which we do this is by fulfilling our obligations under the Impact Benefit Agreements (IBAs) that we have with the First Nation communities near our two Timmins mines.

We have an IBA with the Flying Post and Mattagami First Nations with respect to the Timmins West Mine. We also have an IBA with the Flying Post, Matachewan, Mattagami and Wahgoshig First Nations with respect to the Bell Creek Mine complex. Both IBAs establish frameworks for continued consultation on the mines' existing and future operations, and include provisions regarding education and training, employment, business and contracting opportunities, environmental care, and economic benefits. Highlighted below are examples of initiatives collaboratively created to support local First Nations communities.

On-going engagement

We believe that meaningful engagement with local First Nations offers the greatest potential for building positive, long-term, and mutually beneficial relationships with Indigenous Peoples. It also helps us understand and contribute to their goals. At our Timmins operations, we engage the four First Nations on an on-going basis through multiple channels, including site tours, job fairs, community visits, and educational events. As well, we have an IBA Coordinator on site at Timmins West. The Coordinator is selected and employed by the Wabun Tribal Council, a regional chiefs' council and is responsible for sharing company information with two of the four First Nations communities.

> We are committed to building and maintaining positive relationships with Indigenous groups through on-going engagement and identification of mutually beneficial opportunities.

RELATED SDGS

GRI: MM5

Local hiring

Pan American Silver emphasises local hiring of trained and qualified candidates. Across all operations in Timmins, approximately eight percent of employees currently self-identify as being of Indigenous descent. There are initiatives in place to increase the Indigenous workforce within our organization. In 2019, we partnered with Timmins Northern College to offer the Underground Hard Rock Miner Common Core training, which provides the competencies required by the Ontario Ministry of Training, Colleges and Universities for underground hard rock mining. Many regional First Nation Communities were able to access the program for introductory mine training. Additionally, all job postings are provided to all our First Nation partners prior to mass dissemination, and we provide first hiring opportunities to our partners, so long as the qualifications and experience expectations are met.

Environmental stewardship

We provide financial support to our First Nations partners for their community projects. For example, we provide on-going support to the Mattagami First Nation for the operation of their Walleye fish hatchery in the Mattagami Lake watershed. Walleye are native to most of Canada and are a commercially valuable food fish as well as a popular sporting fish. The Mattagami First Nation's fish hatchery raises and releases hundreds of Walleye into local streams and lakes each year.

Human Rights

Why are human rights important?

Human rights are the foundation of sustainability. All companies have a responsibility to respect international human rights standards. This means not infringing on human rights and addressing adverse human rights impacts that they cause or contribute to, or that are directly linked to their operations, products or services. Largely due to the often remote location and nature of their operations, mining companies have a potential to impact human rights, particularly those of vulnerable populations or Indigenous peoples. Consequently, human rights have become increasingly important within the mining sector and industry groups such as the Mining Association of Canada (MAC), of which Pan American Silver is a member, have worked to align with global human rights objectives. The work we do affects the lives of the communities we engage with. It is paramount not only that we take steps to understand the linkages between impacts of our activities and human rights, but also that we progressively implement proper measures to manage these impacts appropriately.

Material Topic	Human rights
Sub-Topic	Training of security personnel
Definition	Respecting human rights and managing our potential impact on rights holders
Feedback From COIs	NGOs and investors requested collaboration on and a visible demonstration of our commitment to human rights.
How We're Responding	We formalized our existing human rights commitments into a new human rights policy. We conducted an assessment of our alignment with the Voluntary Principles on Security and Human Rights as well as the Child Rights and Security Checklist at two of our sites with armed security.

POTENTIAL RISKS AND IMPACTS

Community opposition to mine operations or development resulting in project or legal proceedings, production delays, revocation of permits, and/or loss of social acceptance

RELATED SDGS

8 DECENT WORK AND ECONOMIC GROWTH

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Our Approach

Pan American Silver abides by applicable local human rights laws, is aligned with key international human rights conventions, and is actively working to apply industry best practices. Our focus is on upholding human rights, respecting the traditions and cultures of local communities. Our proactive identification and management of human rights risks and impacts is a component of our social management framework.

Policy

- Global Human Rights Policy
- Supplier Code of Conduct (Supplier Code)
- Global Code of Ethical Conduct

Programs and initiatives

- Training and capacity building
- We trained Board members on human rights and our Global Human Rights Policy.
- We provide community members with education and training on areas related to basic human rights.
- Response mechanisms – Our site-level response mechanisms help us identify and respond to community concerns around perceived or actual impacts from our operations.

Monitoring and evaluation

- Human resources procedures – We have procedures to screen for child and forced labour at our operations.
- Social audits – Our assessments screen for risks to human rights from our operations. We regularly review our operations, our mining camp living conditions, labour provisions in certain contractor and subcontractor agreements, security contractor practices, and the effects of our social programs on vulnerable groups.
- Community teams – Our site-based teams work with local professionals, including social workers, teachers and health practitioners, to identify potential human rights risks and concerns.
- Security due diligence – We have a process to monitor our relationship and interface with and support for public security. We review the interactions of armed private security contractors with public security entities.

Accountability

- The Human Rights Officer reports to the General Counsel and oversees implementation of the Global Human Rights Policy and associated programs and practices.
- The Compliance Officer oversees human rights due diligence in our supply chain.
- The Director of Security implements our security framework, which is overseen by the Senior Vice President, Corporate Affairs and Sustainability.
- Security managers and supervisors oversee the administration of each operation's contract with private security contractors.

Human rights are the foundation of sustainability. All companies have a responsibility to respect international human rights standards.

Our Performance

In 2019, Pan American Silver adopted the Global Human Rights Policy that is based on the three pillars of the United Nations Guiding Principles on Business and Human Rights[1] and the OECD Guidelines for Multinational Enterprises. Our policy aims to respond to expectations from and build trust with relevant COIs. This board-level policy consolidates our existing objectives in the areas of environment, labour, diversity and social responsibility as they relate to human rights. It formalizes our approach to fostering a positive human rights culture throughout our organization and working to prevent or mitigate any adverse human rights impact of our activities on our employees, communities and other external stakeholders. The Global Human Rights Policy also provides a basis for embedding the responsibility to respect human rights in all of our business functions. It stipulates our expectations of personnel as well as contractors, consultants, suppliers, and other business partners acting on behalf of or representing the Company.

We are committed to respecting international human rights conventions and best practices, including:

- OECD Guidelines for Multinational Enterprises
- Towards Sustainable Mining (TSM): Aboriginal and Community Outreach Protocol
- Towards Sustainable Mining (TSM): Prevention of Child and Forced Labour Verification Protocol
- United Nations Children's Fund (UNICEF) Canada Child Rights and Security Checklist
- United Nations Children's Fund Convention on the Rights of the Child
- United Nations Guiding Principles on Business and Human Rights
- United Nations Universal Declaration on Human Rights

We also created the new position of Human Rights Officer to oversee implementation of our Global Human Rights Policy. We launched the rollout of the policy at the Escobal mine in Guatemala and will continue to implement the policy at our other sites in 2020. As salient human rights issues differ at each of our operations, implementation will be carried out in a site-specific manner. We train management and community teams that, in turn, will develop tools and training appropriate to the operation's context. As we move forward, we will use the policy as a tool to assess and improve our performance across our operations and take a more integrated approach to human rights.

Human Rights Analysis

Our on-going community engagement, social audit process, and response mechanisms are designed to help us identify actual and potential human rights risks resulting from our activities and take appropriate steps to manage and mitigate these risks.

> In 2019, Pan American Silver adopted the Global Human Rights Policy that is based on the three pillars of the United Nations Guiding Principles on Business and Human Rights and the OECD Guidelines for Multinational Enterprises.

(1) The three pillars of the United Nations Guiding Principles on Business and Human Rights are: the State duty to protect human rights (Pillar I); the corporate responsibility to respect human rights (Pillar II); and access to remedy for victims of human rights abuses (Pillar III).

GRI: 407-1, 408-1, 409-1, 411-1

SALIENT HUMAN RIGHTS FOR PAN AMERICAN SILVER

Category	Salient Right	Examples of our management approach
Environment	Clean water and sanitation Health Air Soil Climate Biodiversity	We have systems and processes in place to reduce our use of water and energy resources, use water and energy more efficiently, and avoid negative environmental impacts within and beyond our operating boundaries.
Labour	Equality Non-discrimination Peaceful assembly and association Safe and healthy working conditions	Our Inclusion and Diversity Program is geared towards building safe, respectful, and inclusive work environments, free from discrimination. We are piloting behaviour-based safety programs to improve the safety performance in our mines. Most of our sites has collective agreements with one or more unions. We work in partnership with these unions to further the health and safety of our employees.
Socio-economic	Adequate standard of Living Education Equality Health Non-discrimination Participation in cultural life	We invest in socio-economic development programs that provide lasting benefits to host communities. We prioritize programs related to education, health, and local hiring and procurement opportunities, help create or sustain socio-economic projects designed to benefit local communities.
Security	Peaceful Assembly and Association Life, liberty, personal security	We conducted an assessment of our security practices against the requirements of the Voluntary Principles on Security and Human Rights and UNICEF Canada's Child Rights and Security Checklist at two of our three operations with armed security forces and took steps to improve our security practices.

Rights of Indigenous peoples

Through our acquisition of Tahoe Resources, we now operate three mines located near Indigenous communities – our two Timmins mines in Canada and our Escobal mine in Guatemala.

Indigenous peoples have both individual and collective rights. There are several national and international laws addressing the rights of indigenous peoples. One such instrument is the International Labour Organization Convention 169, which includes a mandate that government consult with Indigenous communities surrounding mining operations prior to granting mining rights, permits or approvals. This is currently the situation with our Escobal mine in Guatemala, where operations are suspended while the government of Guatemala completes an ILO 169 consultation process with local Indigenous communities.

Artisanal and small-scale miners

Artisanal or informal mining can be a key source of income for local communities. It can be associated with a number of negative impacts, including environmental degradation and unsafe working conditions. 118 groups of informal miners are active on land adjacent to our Shahuindo operation. These miners, represented by the Asociación de Mineral Artesanal San Blas (AMASBA), are in dialogue with the Peruvian government to formalize their operations. We are supporting this formalization process and are working with the government, local authorities and AMASBA to define the boundary of the land within which these miners will operate.

Human Rights in our Supply Chain

Our social audit process screens for human rights risks in the provisions in certain contractor and subcontractor agreements, as well as from contractor security practices. We also follow the guidelines set by the World Gold Council's Conflict-Free Gold Standard, which helps us ensure that our actions do not contribute to violations of human rights. The new Supplier Code of Conduct provides an additional framework to help manage human rights risks in our supply chain. This code sets out the expectations for suppliers working with Pan American Silver, including the requirement for compliance with the Global Human Rights Policy and respect for the rights, cultural diversity and customs of local communities and Indigenous Peoples. We are in the process of implementing a due diligence software program to review and monitor supplier relationships.

Security and Human Rights

The priority for all security programs at Pan American Silver is to protect our people and our assets. We believe that making our sites more secure in turn makes local communities more secure. Our objective is to act in accordance with local laws while being mindful of international practices and principles, particularly with regard to the use of security. In 2019, we assessed the security risks around operations and projects and identified the following key risks: crime, potential violence associated with labour unrest, and civil unrest.

Education and Capacity Building

For Pan American Silver, an element of respecting human rights is helping community members to understand and exercise their individual rights. Our community teams conduct education and training for specific community groups such as women, youth, families, and vulnerable people. Over the past few years, we have provided training and education on various important topics, including:

- Access to education and career opportunities
- Domestic violence, addiction, and vulnerable groups
- Gender equality
- Parenting and healthy homes
- Mother and child health
- Hygiene and sanitation practices
- Sexual health and reproductive rights
- Discrimination and sexual harassment

GRI: 411-1, MM5, MM6

Training of Security Contractors

The majority of security at our sites is provided by private security contractors. These contractors have little interaction with community members, and in the event that they do, our dual priority is the safety of community members and respect for their rights as well as the security of our assets. Our goal is to limit the deployment of armed, private security only to those operations where and when it is deemed necessary and, at those locations, reducing access to weapons wherever possible.

In 2019, an independent third party conducted a gap assessment of our security practices against the requirements of the Voluntary Principles on Security and Human Rights[1] and UNICEF Canada's Child Rights and Security Checklist[2] (Child Rights and Security Checklist) at two of our three operations with armed security forces: La Colorada in Mexico and Escobal in Guatemala. Based on the results, we expanded human rights training for security contractors to cover broader issues such as conflict management.

Before allowing their employees at our sites, we require that the companies supplying contract security personnel provide those personnel with human rights training that is in line with international best-practice standards. In 2019, 100 percent of Pan American Silver security employees and independent security contractors working at Escobal[3] and La Colorada received human rights training. The content of our Global Human Rights Policy will be included in these trainings as of 2020.

To better protect the rights and wellbeing of all Communities of Interest affected by a security incident, we are introducing a more robust emergency preparedness and crisis management structure to facilitate appropriate and effective management of a major incident.

Next Steps

- Continue implementation of our Global Human Rights Policy and related programs.

- Conduct assessments of our alignment with the Voluntary Principles and the Child Rights and Security Checklist at Shahuindo, La Arena and Dolores and roll out human rights training.

- Continue implementing our security framework, including development of a consistent training approach for Pan American Silver security employees and private security contractors.

(1) The Voluntary Principles on Security Security and Human Rights are the internationally recognized best practice for the use and conduct of security forces.
(2) UNICEF's Child Rights and Security Checklist helps companies identify potential security-related impacts on children.
(3) Validation of training at the Escobal facility has been fully implemented with a pre-contract review of provider training programs, a monthly review of training conducted by the selected provider and a four monthly in-depth review of all private security standards requirements that includes a training review. This review and validation process will be introduced to our other facilities as the training program is rolled out.

GRI: 410-1

Escobal

Through the acquisition of Tahoe Resources in 2019, Pan American Silver acquired the Escobal mine in Guatemala.

Prior to our acquisition, Escobal's mining license had been suspended pending the completion of an International Labour Organization (ILO) 169 consultation process mandated by the Constitutional Court of Guatemala. The mine is presently on care and maintenance pending the completion of the consultation and court approval for restart.

Prior to and following our acquisition of Escobal, we performed an assessment of the mine's history to identify opportunities and preferred practices for our management of Escobal. This assessment indicated the need to: listen to stakeholders; respectfully engage; increase transparency; develop solutions collaboratively; and deliver on commitments. We also recognized the importance of respecting all groups in our Communities of Interest, including the Xinka people, their culture and values. With this in mind, we engaged with our workforce, local communities, and government to prioritize outstanding issues in need of resolution. In 2019, we undertook the following actions:

- Resolving the legal action against Tahoe Resources (Settled the Garcia v. Tahoe Resources Inc. case. For more details, please click here.)
- Appointing a new country manager in Guatemala and replacing half of Escobal's senior management team
- Designating a Guatemala-based Human Rights Officer who reports to the General Counsel

We also took the following steps to address concerns around security and human rights and to align ourselves with international best practices:

- Appointing a new corporate director of security
- Assessing and improving the alignment of our security practices with the Voluntary Principles on Security and Human Rights as well as UNICEF Canada's Child Rights and Security Checklist
- Assessing the practices of our contract security forces
- Instituting a human rights training program for Pan American Silver's support services personnel and contract security forces
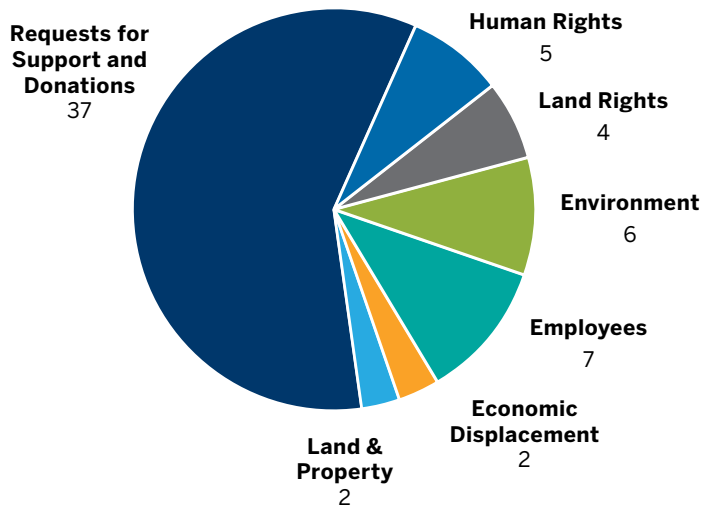
While Escobal is on care and maintenance, we are complying with commitments set out in Escobal's Environmental Management Plan. As part of these requirements, we continue to honor prior commitments made by Tahoe Resources; respond to community requests for information and support; complete community engagement activities; and report to the Government of Guatemala.

We are working toward building enduring, positive relationships with all stakeholders in the region and establishing a reputation as an honest, credible partner.

RELATED SDGS

REQUESTS AND GRIEVANCES (MARCH TO DECEMBER 2019)

Requests for Support and Donations — 37
Human Rights — 5
Land Rights — 4
Environment — 6
Employees — 7
Economic Displacement — 2
Land & Property — 2

In 2019, as a result of our focused efforts on an effective COI response mechanism, we addressed 63 requests and grievances relating to Escobal in a timely manner. The requests and grievances fell into the categories of land and property, economic displacement, employees, environment, land rights, human rights, and mainly requests for donations and support. The one open grievance relates to a land agreement from the previous administration. We are currently in dialogue with the parties involved to seek a resolution. Our site-level response mechanism in Escobal, as well as at our other mines, is aligned with the UN Guiding Principles and TSM protocol requirements in order to improve our accountability and foster the trust in our systems with community members.

We are working toward building enduring, positive relationships with all stakeholders in the region and establishing a reputation as an honest, credible partner. There is currently no timeline for the restart of operations at Escobal. We will respectfully support and participate in the ILO 169 consultation process. We regard the ILO 169 consultation process as essential, and we are committed to investing the time necessary to do it right.

We believe our proven track record of responsibly operating mines in Latin America and building relationships with communities will help us earn a lasting social license for operations at Escobal.

PEOPLE

People

People are Pan American Silver's most important asset. We consider our workforce as a partner in sustainability, as they play a central role in helping us create value for COIs.

Our people provide the intelligence, the ideas and the energy that drive our operating and financial performance and inspire our continued progress in sustainable development.

99%
OF OUR EMPLOYEES
ARE NATIVE SPEAKERS OF
THE LOCAL LANGUAGE
AT THEIR OPERATIONS

15%
INCLUSION AND DIVERSITY
BY PERCENTAGE OF
WOMEN IN NEW HIRES
AND PROMOTIONS

93%
OF OUR SENIOR
MANAGEMENT ARE
FROM THE COUNTRIES
WHERE WE OPERATE

Health & Safety

Why is health and safety important?

Mining, by its nature, has potential hazards that must be carefully managed. On a daily basis, mine workers may be engaged in drilling and blasting rock, operating heavy machinery, handling explosives and chemicals, working with high voltage electricity, working at heights, working with high temperature materials as well as other complex and potentially dangerous tasks. Pan American Silver is deeply committed to protecting the health, safety and well-being of our employees, contractors, suppliers, and community partners where we operate. Operating safely is a moral imperative. We believe that operating safe mines and building a culture of safety are directly related to our operational success and the ability to create long-term value for COIs and society.

Material Topic	Health and safety
Definition	Protecting the health, safety and well-being of our employees, contractors
Feedback From COIs	Our workers want safe working conditions and additional safety training
How We're Responding	We prioritize the safety of our workforce every day. We trained our workforce with 1,065,088 hours of safety training. We are continuing the pilot of our behaviour-based safety program in Peru.

POTENTIAL RISKS AND IMPACTS

Industrial accidents, equipment failure, or ground falls resulting in worker injuries, delayed production, or loss of social acceptance

RELATED SDGS

2019 Goals - Operations and Safety	2019 Results	2019 Performance	2020 Goals
Achieve zero fatalities	✗	Despite meaningful efforts to enhance safety programs throughout the organization, we regrettably incurred two fatalities at our mines.	Achieve zero fatalities
Achieve a lost time injury frequency (LTIF) of 1.5 or less	✓	LTIF rate 1.04	Maintain LTIF of 1.1 or better
Achieve a lost time injury severity (LTIS) of 600 or less	✓	LTIS rate 481	Maintain LTIS of 565 or better

Our Approach

Safety is always our priority, with safe, efficient production being the primary goal at all operations and projects. We are continually striving to prevent workplace injuries through improved training, processes, technology, and innovation.

Policy

- Health and Safety Policy

Programs and initiatives

- The Pan American Silver Safety Pledge and Cardinal Rules (Pledge and Rules) – Set out our fundamental expectations and rules for safety at sites, which apply to all employees and contractors. The Pledge and Rules are incorporated into induction training and safety talks.

- Serious Incident Reduction Initiative – Focuses on preventing serious incidents and fatalities through training and site-specific action plans. We conduct comprehensive investigations of serious incidents and use the findings to improve our systems and processes.

- Health and safety supervisor training program – Provides leadership and technical training for front-line supervisors.

Monitoring and evaluation

- TSM Health and Safety Protocol – All sites conduct annual TSM self-assessments and develop action plans to continually improve performance.

- Safety audits – Each mine is audited annually by a corporate safety department team, led by the Director of Health and Safety. Areas identified as high priority are elevated to the Chief Operating Officer for immediate action.

Accountability

- The Management Safety Committee, Director of Safety, and Safety Coordinator oversee implementation of company-wide initiatives identified through our risk assessment process, safety audit programs, and incident investigations.

- The Senior Vice President, Technical Services & Process Optimization oversees safety in the organization.

- The Board's Health, Safety, Environment and Communities Committee reviews adherence to the health and safety policy, reviews safety statistics, trends, and incident reports, and provides input on the overall safety direction of the Company.

Pan American Silver is deeply committed to protecting the health, safety and well-being of our employees, contractors, suppliers, and community partners where we operate.

Our Performance

Safety Performance

We continuously work to reduce serious injuries and improve our safety performance. We are proud of the safety achievement at our La Colorada mine, where over 2.2 million hours have been worked without a lost time injury. We also congratulate the employees and contractors at our Dolores mine as their excellent safety performance during 2019 resulted in Dolores being selected as the recipient for Pan American Silver's Chairman's Safety Award.

Through the acquisition of Tahoe Resources in 2019, we added four new operations to our Company and nearly doubled our workforce increasing our total numbers of hours worked by over 60% when compared to the previous year. During the year, we focused on integrating these operations into Pan American Silver's safety and reporting systems. Despite the increase in exposure hours, we had a comparatively low 20 percent increase in lost time injuries, which rose from 25 in 2018 to 30 in 2019. We improved both our lost time injury frequency (LTIF) and lost time injury severity (LTIS) rates over the previous year and met both our LTIF and LTIS goals.

We have found the most common lost time incidents to be the result of operating machinery, haulage, rock fall, slips, and falls. Workers not following standard operating procedures has also been identified as a key contributing factor to safety incidents.

SAFETY PERFORMANCE [1]

	LTIF [2]	LTIS [3]
2014	1.14	357
2015	1.09	1,757
2016	0.74	373
2017	1.26	771
2018	1.41	723
2019	1.04	481

(1) Safety data includes employees and contractors at operating mines, and active development and exploration projects.
(2) Lost time injury frequency is calculated as the number of lost time injuries, including fatalities, in the exposure period multiplied by 1 million hours and divided by the total number of hours worked in that period.
(3) Lost time injury severity is calculated as the number of workdays lost due to lost time injuries multiplied by 1 million and divided by the total exposure hours. We count 6,000 lost workdays in the event of a fatal accident.

We are proud of the safety achievement at our La Colorada mine, where over 2.2 million hours have been worked without a lost time injury.

GRI: 403-2

Zero fatal incidents is Pan American Silver's long-standing goal, and in 2019 we were very saddened by fatalities at our COSE project in Argentina and our Morococha mine in Peru. The accident at COSE resulted from a ground fall in a heading that had been supported. Operations were suspended while the accident was investigated. The ground support plan at COSE and Joaquin was thoroughly reviewed, and ground support standards were enhanced to require a higher standard of support. The cause of the accident at Morococha has yet to be conclusively determined; however, additional control measures are being implemented throughout the Company to improve relevant safety controls.

Serious Incident Reduction Initiative

The mining industry has significantly reduced its overall injury rates, but when injuries do occur, they tend to be serious. Unpredictable events and human error are often at the root of serious incidents. Creating a safety culture that supports workers in consistently making safe choices is one of the ways we are working to prevent these incidents and improve our safety performance.

In 2018, we launched the pilot of behaviour-based safety program, @ctua PAS, at Huaron and Morococha in Peru. The objective of this program is to reduce the number of safety incidents caused by human error. The program focuses on empowering workers to take a more active role in their own safety as well as building a culture that encourages and supports workers in consistently making safe choices.

Another component of this program is engaging and educating workers' families on the importance of safety, both in the workplace and at home. Families play an important role in reinforcing messaging around safety and in providing additional motivation for a worker to take time for safety and to follow standard operating procedures. Since the start of the program, we have held several safety-related workshops and events workshops for workers and families of Huaron and Morococha. We will expand this program to more of our mines in 2020.

Safety Training

We provide our workforce with the skills and training necessary to perform their jobs safely. As part of our Serious Incident Reduction Initiative, we also train front-line supervisory workers on the technical and leadership skills relevant to building a safety-focused culture. In 2019, our operations completed over one million hours of training.

WORKFORCE [1] SAFETY TRAINING

Type of Training	Hours
General Safety	563,882
Mining Induction	208,531
Geotechnical	11,993
Formal Safety Meetings	246,900
Mine Rescue	33,783
Total	**1,065,088**

[1] Includes employees and contractors at operating mines, and active development and exploration projects.

Our Pan American Silver Safety Pledge and Cardinal Rules are designed to reinforce a culture of safety throughout the organization. Our objective is for everyone to understand that safety is a personal as well as shared responsibility.

I pledge that I will always:

- Be responsible for my personal safety and the safety of those around me.
- Remember that accidents are preventable.
- Follow Company rules, regulations, policies, and procedures.
- Refrain from doing any task I am not adequately trained to do or feel uncomfortable in doing.
- Practice good housekeeping.
- Refuse to take shortcuts or be involved in any horseplay.
- Report any accident, injury, unsafe condition or unsafe practice to my supervisor.
- Communicate frequently with my supervisor, making sure that I understand the tasks assigned to me. If I am unsure I will ask.

GRI: 404-1

Health and Safety Audits

In 2019, all sites conducted self-assessments against the TSM Health and Safety Protocol. Sites, other than Manantial Espejo in Argentina and Morococha (where fatalities occurred), were close to meeting the TSM Level A target criteria. Sites also developed action plans to reach Level A and continually improve their TSM scores.

SAFETY AUDIT RESULTS
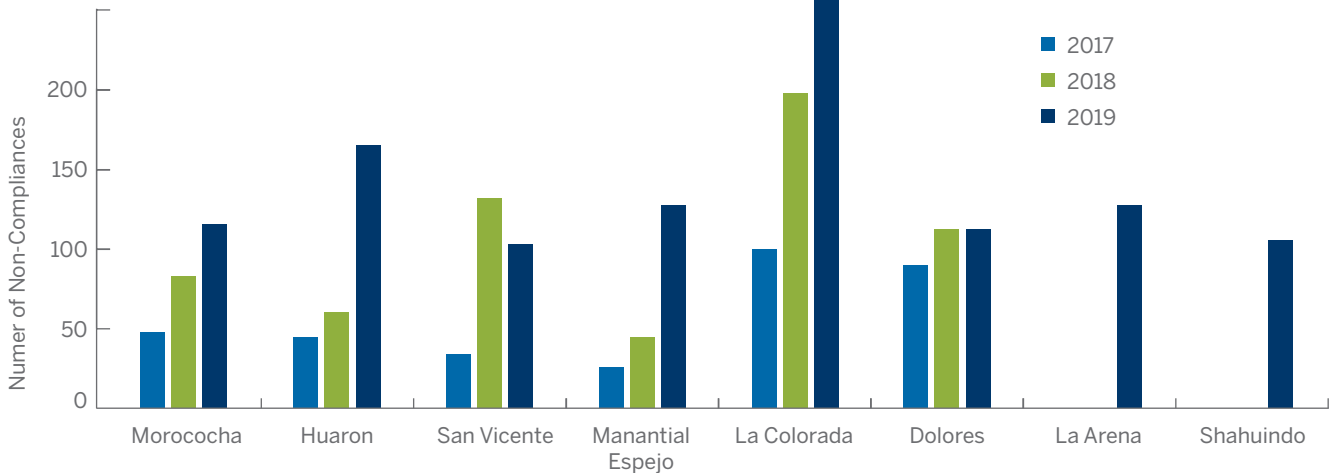
In 2019, health and safety audits were conducted at Huaron, Manantial Espejo, Morococha, San Vicente, La Arena, Shahuindo, La Colorada and Dolores operations. For all but two of the mines previously audited, the number of non-compliance findings increased from 2018 due to our increasingly stringent audit process. By the end of the year, sites had remediated nearly 98 percent of the audit findings.

Technology and Innovation

We commonly pilot and adopt new equipment and technologies to make our work safer and our processes more efficient. Specific examples of these technologies include:

- Fatigue monitoring equipment for open pit haul truck operators at Dolores - This system consists of several optical monitoring sensors inside the cabin of the haul truck and a vibrating system in the seat. Monitors measure the time it takes for the operator to blink. Physical signs of fatigue cause the seat to vibrate, which alerts the operator.

- Wireless networks at our underground mines – These networks improve communication with and real time location monitoring of personnel and key equipment. Knowing the location of our people at all times is critical in the event of an emergency and creates efficiencies by allowing us to send personnel and equipment where they are needed on a timely basis. Further efficiencies may be gained in the future by remotely controlling ventilation fans, pumps and mobile mining equipment.

- Drones – We tested the use of drones in our underground mines to survey open stopes. We will be expanding their use to survey cavities and scan excavations.

- Wearable technology – We are testing wearable technology to monitor the quantity and quality of sleep that operators get in our camps.

- Automated surveying technology – This technology remotely monitors the geotechnical stability of slopes in our open pit mines and could be used to prevent workers from entering potentially unsafe areas.

Next Steps

- Implement continuous improvement to our safety systems and processes

- Roll out the behaviour-based safety program at our mines in Mexico, Bolivia, and Guatemala

Emergency Preparedness and Crisis Management

Our Approach

We classify an emergency as an incident that may result in substantial harm to stakeholders or damage to property. A crisis stems from an incident that may have strategic or organisation-wide impacts. Emergency preparedness and crisis management are essential components of our approach to business continuity and sustainability risk management. We identify company-wide risks, through our quarterly operational risk assessments, which includes the following risk areas: security, political, economic, legal, corruption, environment, social, labour. These assessments assist our Company in taking steps to prevent or minimize the likelihood of events that could result in an emergency or crisis at our operations. In the event that one does occur, we have systems in place to manage it effectively and efficiently.

Systems

- Business Continuity Framework – Our approach to business continuity is designed to help us identify the likelihood of, prepare for, respond to, and recover from an emergency or crisis that could disrupt operations.

- Crisis and Communications Management Guidelines – A component of our business continuity framework, these guidelines align with TSM protocols and provide procedures for identifying and managing crises affecting the Company, our workforce, their families, local communities, and/or the surrounding environment. They also lay out a consistent approach to crisis management and crisis communications across our operations.

Programs and Initiatives

- Site-level emergency response plans – Each site has a plan that addresses site-specific risks and lays out response procedures.

- Regional head office crisis and communications management guidelines – Each head office has a plan that meets both the corporate and any country-specific requirements.

- Training and simulations – Sites provide training on their crisis management plans and run simulations to test emergency preparedness/readiness.

Monitoring and evaluation

- TSM Crisis and Communications Planning Protocol - Sites regularly conduct self-assessments against the protocol and, based on the results, create and implement improvement plans.

Accountability

- Operation emergency response services directly manage an incident. These services can include rescue teams or medical support personnel from our operations and externally.

We are responsible for managing the health and safety of our workforce as well as for managing our impacts on local communities and the environment from incidents outside normal operations.

- Local crisis teams are located in each of our jurisdictions and are responsible for overall management of the response to the crisis at the divisional level.

- Special crisis response teams are external organizations identified as essential for the containment or resolution of a crisis event.

- The Director of Security and Crisis Management oversees implementation of the Crisis and Communications Management Guidelines and Business Continuity Framework.

- The Corporate Crisis Management Team, led by the COO, is responsible for overseeing crisis management planning and response across the organization.

Our Performance

We are responsible for managing the health and safety of our workforce as well as for managing our impacts on local communities and the environment from incidents outside normal operations. To ensure that we are prepared to respond quickly and appropriately, we have identified a range of potential incidents or events that may manifest in a crisis. These include accidents, fires, spills, security incidents, infrastructure failure, and natural disasters.

Our ability to effectively manage a major incident translates into better protection of the rights and well-being of all stakeholders affected by the incident. In 2019, we focused on improving our crisis management systems by:

- Aligning site-level emergency response and crisis management plans with TSM protocols

- Training of management teams on emergency preparedness and crisis management

- Improving our approach to business continuity by appointing a business continuity champion for each country of operation

Community engagement is another vital component of crisis management. We want our local communities to understand potential threats to their safety and security from any incidents at our operations and our planned responses. Our site-level community teams participate in emergency response and crisis management and, where relevant, work with local emergency services on training and coordination of services.

EMERGENCY PREPAREDNESS AND CRISIS MANAGEMENT AT PAN AMERICAN SILVER

Next Steps

- Continue to implement the TSM protocol and conduct simulations

- Continue to implement our business continuity framework at all operations

- Develop a formalized risk management framework and processes

Employee Attraction, Retention, and Development

Why is employee attraction, retention, and development important?

An engaged and skilled workforce is key to any organization's success. In geographically diverse organizations, multi-faceted and multi-cultural work forces bring a wide array of experience, knowledge, background, culture and heritage, all of which can lead to innovation, enhanced operations, and improved relationships with COIs. In the mining industry, it can be challenging to achieve a skilled, engaged, and diverse workforce due to remoteness of operations, traditions, local demographics, an aging workforce, and competition for talent. At Pan American Silver, we recognize that our people are critical to our success. We are committed to recruiting and retaining top talent by building a respectful organization that is representative of the communities in which we operate.

Material Topic	Employee attraction, retention, and development
Sub-topic	Employment conditions and benefits
	Employee and contractor training and development
	Inclusion, diversity and equal opportunity
	Labour relations
	Non-discrimination and pay equity
Definition	Creating the right conditions to attract, develop, and maintain a talented and engaged workforce
Feedback From COIs	Employees and potential employees look to us to provide fair compensation, stable employment, development and training
	Diversity in our workforce and equal opportunity for all our employees
	Non-discrimination in our workforce, including equal pay for men and women
How We're Responding	We hire locally and create other employment opportunities through our procurement and other socio-economic programs
	We are implementing diversity and inclusion programs at all sites. We set salaries based on objective criteria, not gender

POTENTIAL RISKS AND IMPACTS

Skills shortages and competition for talent

Labour disruptions and work stoppages

Low productivity and efficiency

RELATED SDGS

8 DECENT WORK AND ECONOMIC GROWTH

2019 Goals

2019 Goals - People	2019 Results	2019 Performance	2020 Goals
Conduct annual Leadership Development Program workshops involving leaders from all operations. Conduct "fast track" train-the-trainers leadership program at our newly-acquired Tahoe operations.	✔	We conducted our Leadership Development Program. We initiated behaviour-based safety programs, and supported learning exchanges between operations.	Conduct on-site leadership skills programs at all our operations. Conduct safety behavior training programs and facilitate the exchange of learning between operations.
Inclusion and diversity by percentage of women in new hires and promotions by 20%	✘	15.28%	Inclusion and diversity by percentage of women in new hires and promotions by 15%.

Our Approach

We work to attract, retain, engage, and develop the best talent. We offer our employees quality employment with competitive compensation and opportunities for professional development. In managing our human resources programs, we focus on key principles:

- Providing competitive compensation and quality benefits
- Providing opportunities for training and professional development
- Fostering a respectful work environment

Policy

- Global Code of Ethical Conduct
- Board and Senior Management Diversity Policy
- Global Human Rights Policy

Programs and Initiatives

- Inclusion and Diversity Program – Fosters an inclusive work environment through a focus on gender, national culture, and generational diversity.
- Leadership Development Program – Focuses on the personal and professional development of current and future leaders.
- Site-level training programs – Provide necessary skills and development opportunities to meet site-specific current and future needs.
- Site-level union agreements – Improve safety standards and working conditions at our operations by working with union leaders.
- Whistleblower hotline – Employees can anonymously report actual or potential breaches of the Global Code of Ethical Conduct via phone or web, in English or Spanish, 24 hours a day, 365 days a year.

Accountability

- Human Resource and Social Responsibility departments lead inclusion and diversity initiatives.
- Corporate Inclusion and Diversity Advisory Committee and site-level sub-committees oversee inclusion and diversity initiatives.
- The Vice President of Social Sustainability, Inclusion and Diversity is responsible for inclusion and diversity initiatives and performance.
- The General Counsel has functional oversight of corporate human resources and the Vice President of Human Resources (Operation) manages the operations human resources in the organization.

We work to attract, retain, engage, and develop the best talent. We offer our employees quality employment with competitive compensation and opportunities for professional development

Our Performance

Employment Conditions and Benefits

We invest in our workforce, offering meaningful employment and fair compensation. It is important to us that the majority of workers responsible for core processes are Pan American Silver employees, not contractors. We want our employees to feel valued, take pride in our Company, embody the Pan American Silver values, and share in our success. We recognize that we must provide competitive compensation and benefit programs to attract and retain skilled and motivated employees. Although the formal mining sector is among the highest-paying in each of the countries where we operate, we regularly benchmark compensation to ensure we are paying in line with market trends and complying with local legislation.

Pay equity

At each of our sites, we set salaries based on objective criteria, not gender, and establish salary bands, which are externally benchmarked on a regular basis.

Turnover

Tracking turnover is one way we review our market competitiveness, assess the effectiveness of our hiring practices, and evaluate our performance as an employer. Across the Company, our overall annual turnover rate in 2019 was approximately eleven percent, compared to nine percent in 2018.[1] Despite our acquisition of Tahoe Resources during 2019, we maintained a relatively stable turnover rate due to our business continuity planning prior to the acquisition and maintaining a strong commitment to our employees. Our turnover rates reflect local labour market competition and industry trends and changes. At the operations level, competitive environments for skilled labour and opportunities at new mines are generally responsible for voluntary turnover.

At the senior management level, our annual turnover increased from five to 21 percent.[2] In past years, we have had low turnover at the senior management level, which we attributed to a shared commitment to the Company's values and objectives. This recent increase is the result streamlining our operations after the acquisition of Tahoe. In addition, our Alamo Dorado mine in Mexico is in the post-closure stage, requiring fewer employees at site.

We want our employees to feel valued, take pride in our Company, embody the Pan American Silver values, and share in our success.

(1) Turnover includes both voluntary and involuntary turnover.
(2) Senior management includes executive officers, vice presidents, country managers, directors, operation managers and unit managers.

GRI: 405-2, 401-1

Merging our People

We acquired Tahoe Resources in 2019 and increased our workforce by 41%. When we began to consolidate our assets and workforce, turnover was inevitable. Our objective was to maximize the value of each mine site over its lifespan by retaining the best talent from both companies and optimizing and streamlining teams. To manage this transition, we worked extensively with senior management to understand the needs and challenges of each operation and designed a fit-for-purpose organizational structure. Based on this information, we created an objective and transparent methodology for role evaluations and interviewed individuals for existing positions. Through this process, we were able to get the right people in each position and manage employee uncertainty that could have led to the loss of both talent and productivity.

Another focus for us was the integration of employees from Tahoe Resources into our management teams and culture. This meant providing educating site leaders and supervisors on the Pan American Silver values and instilling an understanding of what it means to be a Pan American Silver employee. All of our employees are ambassadors of our values. Therefore, it is important to us that our leaders communicate these values to the site-level workforce and model these values through decision making and interactions with stakeholders.

> "Pan American Silver's greatest strength has always been its people. The acquisition of Tahoe Resources has given us access to new depths of talent, competence, and expertise."
>
> – Steve Busby, *Chief Operating Officer*

Training and Development

To retain a skilled workforce, we invest in employee development. Each operation provides training to both employees and contractors based on the needs and skill requirements of the mine. Our Leadership Development Program (LDP) allows us to identify leaders and managers from diverse backgrounds who are in positions that influence business outcomes and who are likely to drive Pan American Silver's future success. This important program is designed to develop these future leaders by deepening their understanding of the mining industry, our business, and our operations, enhancing their management skills and leadership capabilities, and reinforcing both Pan American Silver's leadership competencies and its corporate values. Approximately 30 employees complete this program successfully each year.
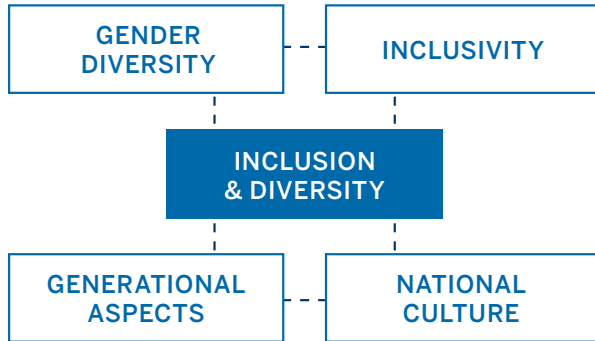
Labour Relations

The mining industry is heavily unionized, and across our organization 52 percent of our employees are unionized. We respect our employees' rights to choose whether or not to unionize. Our commitment to recognize the right to freedom of association and collective bargaining is set out in our human rights policy.

Each of our sites has collective agreements with one or more unions and strives to maintain positive relationships with our unions and with unionized workers. Our objective is to work in partnership with our unions, which furthers the health and safety of our employees, and in turn, supports the Company as well as local communities. In 2019, we had no strikes or lockouts exceeding seven days.
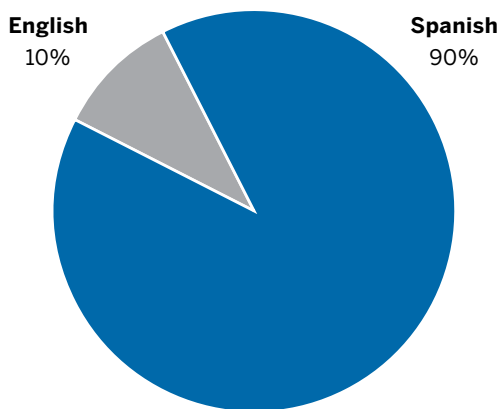
GRI: 102-41, 404-1, MM4

Fostering an Inclusive Work Environment

We strive to achieve an inclusive work environment where all are treated fairly and respectfully, have equal access to resources and opportunities, are free from harassment, and can contribute to the success of the organization. For Pan American Silver, diversity includes gender, ethnicity, age, race, religion, disability, cultural, socio-economic background, nationality, sexual orientation, language, educational background, and expertise.

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┌──────────────┐       ┌──────────────┐
│   GENDER     │ - - - │ INCLUSIVITY  │
│  DIVERSITY   │       │              │
└──────────────┘       └──────────────┘
         ┌──────────────────┐
         │    INCLUSION     │
         │   & DIVERSITY    │
         └──────────────────┘
┌──────────────┐       ┌──────────────┐
│ GENERATIONAL │ - - - │   NATIONAL   │
│   ASPECTS    │       │   CULTURE    │
└──────────────┘       └──────────────┘
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Our focus is on three key aspects of diversity: gender, national culture, and generational. Each mine site has an inclusion and diversity sub-committee that is responsible for developing and implementing site-specific inclusion programs and setting diversity targets. In 2019, these teams focused on developing a better understanding of what diversity means at their respective operations and the local challenges to inclusion. Because Pan American Silver emphasizes hiring from local communities, the human resources and sustainability functions work together to address actual and perceived barriers to hiring and retaining employees who are representative of the local community, as well as barriers to working with our Company as contractors or suppliers.

MAIN LANGUAGE SPOKEN BY EMPLOYEES

English
10%

Spanish
90%

We strive to achieve an inclusive work environment where all are treated fairly and respectfully, have equal access to resources and opportunities, are free from harassment, and can contribute to the success of the organization.

Gender Diversity

Women are underrepresented across the mining industry, and as well in our Company, particularly in technical and trades roles. Historically, mining was not seen as an attractive career choice for women, a view that has further perpetuated the traditionally low representation of females in the industry.

We see women as drivers of positive long-term change for Pan American Silver. Currently, nearly seven percent of our employees are female, a slight increase from 2018. The majority of these women work in professional, administrative, and support roles.

Across the organization we increased our emphasis on the recruitment, retention, and promotion of women, with the objective of increasing the number of new hires and promotions filled by women. We undertook a review of the capacity and skills of our female employees. This initiative resulted in an increase in the number of women in management roles in Peru, Mexico and Argentina, promotions for 30% of the women in our Lima office, and increased participation of women in our LDP.

Each site faces specific challenges in regard to hiring more women. These challenges may include cultural beliefs, traditional gender roles, and low numbers of female candidates with technical training. In certain regions, the absence of available jobs in other industries keeps turnover rates low at our operations. Low turnover, in turn, can result in a lack of available entry level positions for women.

PAN AMERICAN SILVER WORKFORCE

Type	Female	<30	>50
Employees	7%	19%	13%
Contractors	11%	32%	7%

DIVERSITY OF EMPLOYEES AND CONTRACTORS BY GENDER AND AGE
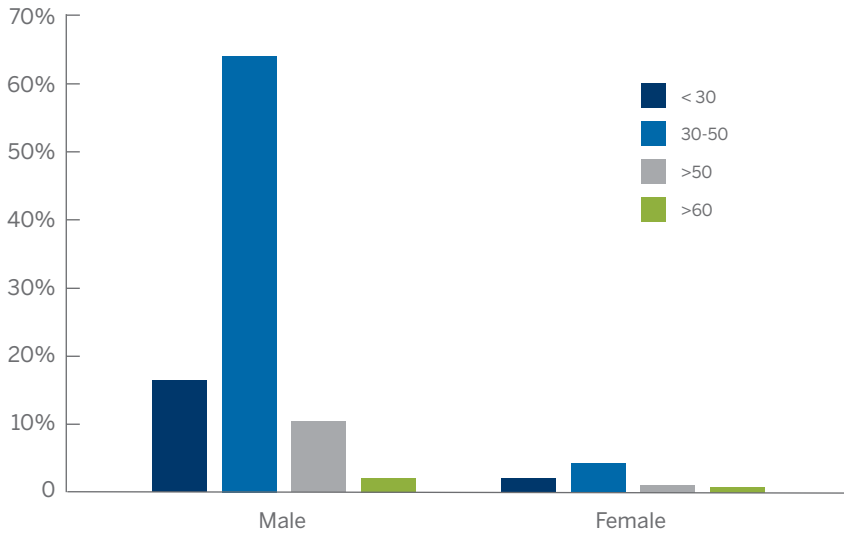
In 2019, each site took steps to address identified challenges and create more positive workplaces for female workers. These actions included:

- Providing additional washrooms and/or breastfeeding rooms
- Allowing flexible work schedules
- Providing protective equipment appropriate in size and design
- Delivering training on respect for women in the workplace and sexual harassment laws and behaviour expectations

In 2019, we also updated the Board and Senior Management Diversity Policy to emphasize gender diversity as a key consideration when recruiting, hiring and promoting persons at the Board and senior management levels. We currently have one female Board member, four female vice presidents, and four female directors. No senior vice presidents or executive officers are women. Going forward, diversity, and gender diversity, will be accorded special attention as we consider Board and senior management appointments with a view to increasing the representation of women amongst the Company's leadership.

We know that our ability to attract qualified female candidates is, at least in part, dependent on increasing gender representation in career fields relating to our business and increasing the number of female job applicants. In some of our host communities, we promote mining as a career prospect to female secondary students, and to the community at large. We also provide scholarships to women entering technical programs at universities. In addition, we support external programs intended to inspire women to enter science and mining related careers, that promote women in mining and, more generally, champion women into leadership roles.

Across the organization we increased our emphasis on the recruitment, retention, and promotion of women, with the objective of increasing the number of new hires and promotions filled by women.

Cultural Diversity

We operate mines across the Americas in areas with different cultures, languages, and values. Whenever possible, we hire our workers and management from the host communities and countries as a means of contributing to local economic development. Managers who speak the local language and understand the local culture help translate our corporate values into site practices in a way that is appropriate for that site and the local norms. In 2019, 99% of our employees were nationals of the countries where the mine is located.

Although the majority of our employees have Spanish as their native language, through our acquisition of Tahoe, we have increased the number of native English speakers, and native French speakers. Our goal is to be inclusive and communicate more effectively, and we use simultaneous translators so that all participants can comprehend, participate, and contribute in critical strategic meetings. Cross culture awareness is also a component of our LDP.

PERCENTAGE OF EMPLOYEES BY NATIONALITY(1)

Argentina 10%
Canada 10%
Bolivia 7%
Guatemala 3%
Mexico 24%
Peru 46%
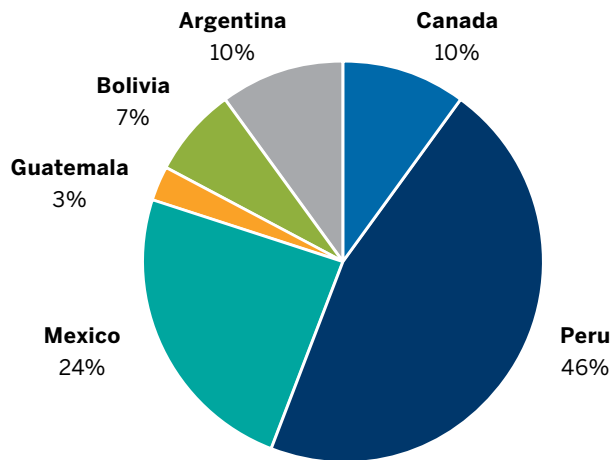
(1) Includes only permanent employees.

Our goal is to be inclusive and communicate more effectively, and we use simultaneous translators so that all participants can comprehend, participate, and contribute in critical strategic meetings.

LOCAL EMPLOYEES BY COUNTRY

	Mexico	Peru	Bolivia	Argentina	Guatemala	Canada	Total
Senior Management[1]	96%	100%	92%	73%	99%	100%	**93%**
Total Employees[2]	98.2%	100%	99.8%	99.4%	100%	100%	**100%**

(1) Includes executive officers, vice presidents, country managers, directors, operation and unit managers.
(2) Includes permanent employees who are either born in or have the legal right to reside indefinitely in the same geographic market as the operation.

Generational Diversity

To enable all employees to contribute fully, it is important that we understand the needs and expectations of employees in different stages of life. This refers to values, use of technology, management styles and preferences, and so forth. With 19% of our employees under 30 years of age and an older generation of miners simultaneously approaching retirement, this is of particular importance. We also need to create opportunities and mechanisms to transfer knowledge to this younger generation.

Non-discrimination

We have zero tolerance for discrimination, and we work hard to prevent instances of discrimination not only in our workplace, but also against community members and service providers. In 2019, one allegation of harassment and one allegation of discrimination were reported through the whistleblower or other reporting channels. Both allegations are under investigation.

Based on feedback from our annual stakeholder engagement survey, we learned that our employees wanted to have response mechanisms available. in their workplace. This would provide another channel through which they could raise questions and concerns with management. We are currently working to build this employee response mechanism and will pilot it at all of our operations in 2020.

Next Steps

- Roll out the Building Respect Together pilot program
- Develop inclusivity and diversity metrics
- Pilot our workplace response mechanism at all operations

Click here to see additional data for:

- GRI 102-8 Information on employees and other workers
- GRI 401-1 New employee hires and employee turnover
- GRI 405-1 Diversity of governance bodies and employees

GRI: 202-2, 406-1

Respectful Workplaces

We believe that a diverse workforce makes us stronger. We want our workforce to represent the diversity of the communities in which we operate. This means creating the right conditions to attract and retain a diverse workforce.

Our focus in 2019 was on increasing gender diversity at Pan American Silver because we see women as drivers of positive long-term change for our operations. To help us create opportunities and conditions to attract and retain women, we worked hard to understand the actual and perceived challenges they face. These challenges include several interconnected and long-standing issues.

- **Cultural norms** – In some parts of Latin America, women were not allowed in underground mines. While this may no longer be the case, a predominate culture of machismo can lead to non-acceptance of female colleagues, harassment, discrimination, and resistance to women in leadership roles. In addition, legislation in many countries provides insufficient social support, such as maternity leave coverage and childcare funding, to encourage women with children to work full time.

- **Equipment and facilities** – Traditional mining equipment is not sized appropriately for women.

- **Location of operations** – Mines are often located in remote areas, far from workers' homes and families. In Latin America, traditional gender roles make domestic work as well as child and elder care the responsibility of women. This means that working on site may not be a viable option for women who do not live in mining camps or close to the site. Female workers who do live in a mining camp may be better able to balance the requirements of work and home, provided the camp offers such social services as adequate child and health care.

Our focus in 2019 was on increasing gender diversity at Pan American Silver because we see women as drivers of positive long-term change for our operations.

It is not the role of Pan American Silver to change existing norms or practices in the countries where we operate, but we do collaborate with governments and communities in working toward transformational changes with existing cultural dynamics. Our primary responsibility is, however, to attract and develop the best talent, to create work environments that foster optimal contributions, and to ensure that our operations run safely and efficiently. To help women feel safer, valued, and empowered to contribute, at our sites we:

- facilitated focus groups and conversations to better understand women's needs and expectations around diversity and inclusion;
- delivered training and workshops on respect for women in the workplace; and
- provided training on sexual harassment laws to help employees recognize and respond appropriately.

This work has entrenched our belief that a respectful workplace is the foundation for building an inclusive workplace in which diversity is the norm and individuals feel safe, are treated fairly, and receive equal opportunity to develop and advance.

Building Respect Together Program

In 2020, we will be piloting our Building Respect Together program with the intention of creating more respectful, safer, and sustainable work environments. The program will also include content to foster greater understanding and protection of, and respect for women's rights. We are developing metrics to evaluate the program's effectiveness and will be reporting progress in future reports.

The program has five components:

- Respect – establishing respectful understanding
- Awareness – developing assertiveness and empathy
- Self-Esteem – understanding who you are
- Teamwork – working collaboratively
- Managing Differences – communicating effectively
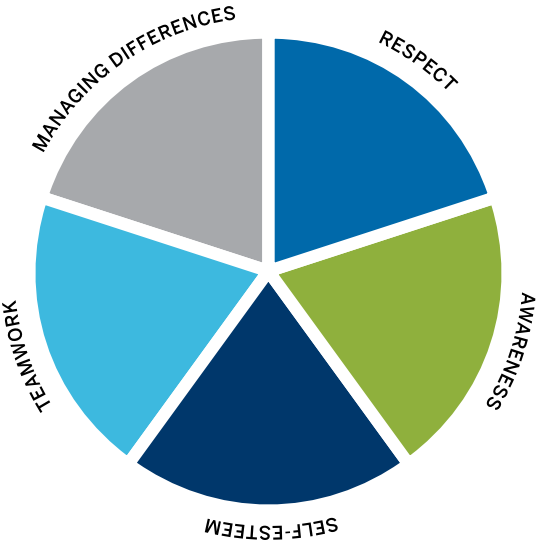
ENVIRONMENT

Environment

Environmental stewardship and responsible management of the Earth's finite natural resources are among our founding principles and company vision.

Silver and the other metals we produce make important contributions to reducing global carbon emissions and other environmental impacts, and we implement projects to maximise the energy and water efficiency of our activities. We work to continually improve the environmental performance of our operating mines and minimize the potential impacts of new projects and closed mines.

ZERO

SIGNIFICANT
ENVIRONMENTAL
INCIDENTS AT OUR
OPERATIONS

25%

DECREASED OUR
NON-RECYCLABLE
HAZARDOUS WASTE
GENERATION AT SILVER
SEGMENT OPERATIONS

360,000

MORE THAN 360,000
TREES PLANTED AT
DOLORES AND LA ARENA

2019 Goals Environment

2019 Goals - Environment	2019 Results	2019 Performance	2020 Goals
Achieve zero significant environmental incidents (SEIs) at our operations*	✓	Zero SEI's at our operations	Achieve zero SEIs at our operations
Improve on annual environmental audit performance	✓	Improved audit performance at Manantial Espejo by reducing the severity of non-conformances compared to prior audit	Improve on bi-annual environmental audit performance
Reduce water use compared to business as usual by implementing well-designed projects at our operations	✓	Reduced water use from external sources at San Vicente mine through increased use of effluent from the mine water treatment plant for mineral processing. Increased water recycling at our Morococha mine and reduced water use intensity for mineral processing. Implemented improved water accounting and management in our Peruvian and Mexican operations	Reduce water use compared to business as usual by implementing improved project design at our operations
Substantially complete active physical reclamation activities at Alamo Dorado and conduct interim reclamation projects at our active operations	✓	Successfully transitioned Alamo Dorado to post-closure with ongoing monitoring and maintenance activities. Completed progressive closure activities at our Peruvian and Mexican operations on schedule.	Continue post-closure activities at Alamo Dorado and conduct interim reclamation projects at our active operations
Reduce hazardous and non-hazardous waste generation at our operations compared to business as usual	✓	Hazardous waste generation at silver segment* operations decreased by 25% compared to 2018 and recycling of hazardous waste increased. Non-hazardous waste generation reduced by 21% at silver segment operations, influenced by Alamo Dorado.	Reduce hazardous and nonhazardous waste generation at our operations compared to business as usual
Implement projects that can potentially reduce energy use at our operations compared to business as usual	✓	We implemented projects to: improve ventilation, pumping and grinding mills at Bell Creek; install LED lighting at La Colorada; improve diesel power plant efficiency at Manantial Espejo; and optimize the use of ventilation fans at San Vicente, which reduced energy consumption compared to business as usual.	Implement projects to reduce energy use at our operations compared to business as usual
Implement projects that can potentially reduce greenhouse gas emissions at our operations compared to business as usual	✓	Connection of the Shahuindo mine to the national grid reduced greenhouse gas emissions from that operation. Energy projects contributed reductions in greenhouse gas emissions relative in 2019.	Implement projects to reduce greenhouse gas emissions at our operations compared to business as usual
Complete self-assessments under the Mining Association of Canada (MAC) Towards Sustainable Mining (TSM) program and develop action plans for each operation to achieve "A" level compliance by 2020	✓	All silver segment mines continue to implement action plans to achieve level A in 2020 and gold segment mines are on track to meet the goal in 2022.	Achieve A Level TSM performance in 2020 at silver segment operations. Achieve A level by 2022 or earlier at gold segment operations.

*Silver segment operations consist of the six silver mines in existence prior to Pan American Silver's acquisition of Tahoe.

Managing Environmental Impacts

We work to minimize and mitigate the environmental impacts of our operations in each phase of the mining cycle – from exploration through development, construction, operation, closure, and post-closure.

We strive for continual improvement and have adopted best known practice international standards, including the Mining Association of Canada's Towards Sustainable Mining (TSM) program across our operations.

Our Approach

Policy

- Environmental Policy

Systems

- TSM - We implement management systems in line with TSM protocols.
- Corporate Environmental Standards – Our internal standards are intended to help sites implement and share best known practices to manage and mitigate impacts in key areas. We have standards covering tailings, heap leach pads, biodiversity, and mine closure.

Plan

- Baseline data collection and pre-construction environmental impact assessments help us plan our work and monitor the impacts of our operations.
- The Company strives to share novel and best practices, as well as challenges, between our site environment and community teams.

Engage

- Environment and community teams collaborate to engage with COIs on environmental issues and concerns and respond to feedback provided through our community response mechanisms.

Implement

- Programs and initiatives – Our programs are designed to manage and mitigate our impacts on the environment and communities, and to maximize the benefits of the environmental knowledge and expertise we develop for other stakeholders in the regions where we operate.
- Internal capacity building – We train our local teams on guidelines and procedures to continually improve our environmental management performance.

We strive for continual improvement and have adopted best known practice international standards.

Monitor and evaluate

- TSM protocols – our sites self-assess their performance against these protocols and develop corresponding action plans for improvement.

- Environmental Audits – Each mine is audited at least every other year to assess the mine's facilities, operating procedures, and control systems to ensure potential risks are being managed correctly. Audits are conducted by a team of professionals from our other mines and corporate office. In addition, we occasionally add a third-party specialist to the audit team to address in greater detail specific areas of concern or opportunities. The audit process fosters the sharing of best practices and integration among mines and helps ensure that site level procedures are consistent with TSM and our corporate standards.

Accountability

- Each operation is responsible for the development and implementation of procedures and programs that comply with our Environmental Policy, systems, and corporate initiatives.

- The Vice President, Environment, oversees environmental management for our Company.
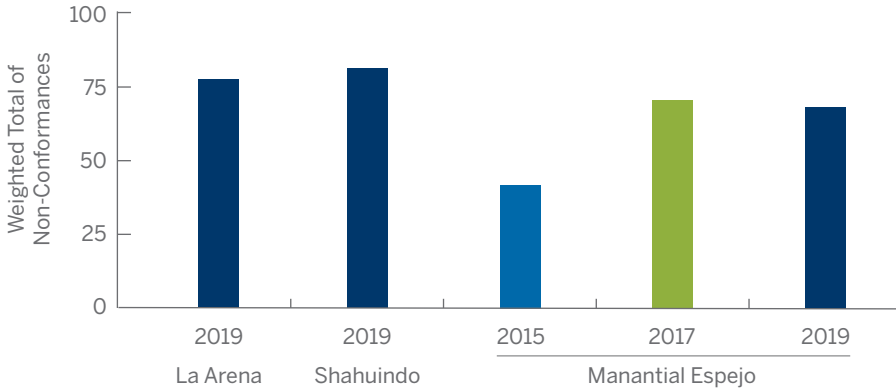
Our Performance

Our biggest challenge in 2019 was the integration of the recently acquired gold segment operations (Tahoe Resources) into Pan American Silver. This required strengthening our teams as well as streamlining management and reporting systems. We incorporated the Tahoe mines into our corporate environmental audit program. Integrating the new mines required us to update and expand certain systems and processes in areas such as water management and mine closure to ensure the Tahoe operations were meeting our standards. We also gained additional capacity and talent from the new operations and were able to leverage experience and advanced tools from Tahoe, including data management and reporting systems, which we are applying across the Company.

Another focus for us was the continued implementation of TSM protocols and frameworks. In 2019, our corporate office and sites conducted self-assessments against the TSM protocols and have been implementing detailed action plans to address gaps and enhance internal guidelines and processes. Our silver segment mines were on track to achieve TSM Level A across all protocols by the end of 2020; however, progress has been delayed by forced mine suspensions related to the COVID-19 pandemic. Our newly acquired gold segment operations have a goal to meet Level A by 2022 or earlier and are already making good progress. Sites are also working to align their management systems with the TSM protocols.

Significant Environmental Incidents

No SEIs occurred at our mines in 2019. We define SEIs as those that negatively impact the environment or communities outside of our mines or project sites, including environmental incidents that significantly impact the reputation or community perception of Pan American Silver. Our focus on prevention, environmental management through our auditing program, emergency preparedness, and crisis management at the site and corporate levels to rapidly address issues that may arise supports our ability to avoid SEIs.

MINES AUDITED IN 2019

In 2019, we completed audits at Manantial Espejo as well as at two of our newly acquired mines, Shahuindo and La Arena. Manantial Espejo improved its overall audit performance from the prior 2017 audit. While the overall number of audit findings increased, the severity of non-conformances was lower than that found in the previous audit. The majority of non-conformances were of low severity such as solid industrial waste management, housekeeping, and lack of signage. Shahuindo and La Arena performed well on their first audits under the Pan American Silver system. Both mines are addressing audit findings related to water management by implementing water management plans through water committees at each site. The 2020 audit plan includes audits at Timmins, San Vicente, Dolores, and La Colorada subject to COVID-19 pandemic impact adjustments.

Air Quality

Dust generated by activities such as blasting, crushing, and transport gravel roads can potentially affect air quality if not properly managed. In addition, ore processing and site laboratory activities have certain emissions that also require management controls. All our operations have dust suppression systems and actively manage dust sources from mobile transport. In addition, many of our sites' processing and laboratory emission sources have air quality control systems installed. To insure compliance with relevant air quality standards , we conduct regular air monitoring around our operations and also monitor laboratory and refinery air extraction emissions. In 2019, our sites completed dust, laboratory, and refinery monitoring in accordance with best practices and the results complied with relevant air quality regulations.

Dust generated by delivery truck transportation is a community concern at our La Arena and Shahuindo mines. We have been working with those communities to find creative solutions, including the use of additives that improve road surface stability and reduce water use for dust suppression.

We also gained additional capacity and talent from the new operations and were able to leverage experience and advanced tools from Tahoe, including data management and reporting systems, which we are applying across the Company.

Water

Why is water important?

Access to clean water is a basic human right and essential for health, agriculture, and other industries in the communities near our operations. Maintaining environmental water flows in certain streams and aquifers is required to protect ecosystems. Water is also a necessary input for mining processes and in some cases groundwater must be extracted to allow safe mining of deeper ore bodies. Mining has the potential to affect both local water quality and quantity. In recent years, the mining industry has emphasized a need to move from traditional site-focused water management to a more holistic water stewardship approach in dialogue with COIs. For Pan American Silver, effective water stewardship is essential to developing access to valuable resources, protecting shared resources, respecting the rights of other water users, and avoiding impacts that may occur within and beyond our operating boundaries.

Material Topic	Water
Sub-topic	Water quality
	Water use
Definition	Managing the impacts of our activities on water quality and availability.
Feedback From COIs	Communities are concerned about water quality, water scarcity, and continued access to water.
How We're Responding	We reduced new water extraction at our San Vicente mine through increased water reuse and recycling.
	Our company-wide water use intensity fell significantly due to the low water intensity gold segment operations we acquired.
	Community members participate in water quality monitoring at many of our sites that provides greater transparency and knowledge about the water we use.

POTENTIAL RISKS AND IMPACTS

Potential water scarcity and impacts to water access for local communities

Potential water contamination if not managed properly

New or more stringent water regulations

Accidental discharges potentially affecting water quality

RELATED SDGS

6 CLEAN WATER AND SANITATION

14 LIFE BELOW WATER

Our Approach

Effective water stewardship involves minimizing our use of freshwater, using water more efficiently, avoiding negative impacts on water quality within and beyond our operating boundaries and many instances developing access to water resources that were previously unknown or undeveloped.

Programs and initiatives

- Water baseline studies – Catchment or district level baseline studies are used to identify water availability and quality prior to and during mining. These baseline studies can identify previously unknown water resources or infrastructure opportunities that improve water availability for our COIs during and particularly beyond the mine operation.

- Water balances – Each operation maintains a water balance that tracks water use, reuse and discharge. These data inform decision making.

- Community engagement - We involve community representatives in participatory water monitoring at our Peruvian and Canadian operations and are working to implement similar frameworks at our other mines where communities have shown an interest in such programs.

Monitoring and evaluation

- TSM Water Stewardship Protocol – Each site conducts an annual self-assessment against the protocol and develops an action plan to implement improvements.

- Water quality – We monitor water quality upstream and downstream of our mines to identify water-related impact risks and opportunities and to ensure that our water use and discharge decisions do not compromise the needs of other users while minimizing the impacts on the ecosystems. We monitor the quality of water discharged from our mines' wastewater treatment plants to ensure that we comply with the permissible water quality standards defined in our construction and operation permits.

Our Performance

In 2019, our sites set water goals and implemented projects to reduce their water use. Key achievements:

- We completed a major upgrade to our mine wastewater treatment facility at San Vicente, which enabled us to increase the reuse of plant effluent and reduce freshwater use for mineral processing.

- We established water management committees at our Peruvian operations and invested over $2.5M in surface water management improvements at Shahuindo that also increases our reuse of surface and groundwater water that has contacted mine disturbance reducing our demand for freshwater.

- We installed water flow monitoring equipment at our Mexican and Peruvian operations to improve water accounting and management.

2019 COMPANY-WIDE WATER BALANCE
(Million m3)

NEW PROCESS
WATER
12.01

PLANT

TAILINGS/LEACH
PAD

SURFACE WATER
8.72

PLANT
THICKENER
RECYCLE
3.71

TAILINGS +
HEAP LEACH
RECYCLE
46.28

OTHER
4.69

PRECIPITATION
21.95

MINE OFFICE & CAMPS
0.46

SURFACE WATER
78.51

GROUNDWATER
56.05

ROAD WATERING
& UG MINE USE
2.56

GROUNDWATER
1.45

DISCHARGE
WITHOUT USE
69.80

COMMUNITY
WATER SUPPLY
0.19

TOTAL WATER
INPUTS:
86.72

TOTAL WATER
ACCUMULATION:[2]
1.88

TOTAL WATER
OUTPUTS:
84.8

(1) As defined in 'A Practical Guide to Consistent Water Reporting', International Council on Mining and Metals (2017).
(2) Reflects additional accumulated/collected in water reservoirs and heap leach pads.

Our company-wide water balance shows how much water we extract, recycle and discharge. We obtain water through permits from both from groundwater, including the dewatering of our mines, and from surface water sources such as lakes or rivers. We use a portion of this water, along with water recycled from our process plants, water treatment plants, tailings facilities, and heap leach pads, for ore processing. Most of the groundwater extracted at our operations is for mine dewatering and is treated and discharged without use into local streams. This water becomes available to other water users and maintains environmental flows. Both new and recycled water is used for drilling, dust suppression, and in our camps. Some of the water that we extract is used to support local agriculture or is provided directly to local communities to help meet their water needs. Water is also evaporated to the atmosphere and/or retained in our tailings or heap leach facilities.

Water use intensity

Water intensity is a measure of how much fresh water extracted we use in our mines on a unit basis of cubic meters of water per tonne of ore treated. In 2019, we changed our methodology for averaging water use intensity and accounting for precipitation on our leach pads and tailings facilities which is now included as new fresh water without discounting evaporation. These two changes largely offset each other but did result in to our company-wide water use intensity which we are restating for 2017 and 2018 in this report.

Using our new methodology, the combined water use intensity of our silver segment operations in Mexico, Bolivia, and Argentina was 0.3 m3/tonne of ore processed in 2019, slightly higher than 2018 mainly due to an increase of use of tailings for mine backfill at La Colorada. This reuse of tailings for backfill reduced water available for recycling to the process plant, increasing water use intensity for mineral processing. Water use intensity at our two Peruvian silver segment mines, Huaron and Morococha, is greater, averaging 4.0 m3/tonne of ore processed in 2019. We report water intensity of those two mines separately since their data would otherwise masks the trends at our other operations. Huaron and Morococha have high water intensity because they are designed with gravity-driven water supply systems wherein water flows from large lakes through the mineral processing plant, is treated, and is then discharged downstream. Both mines are located in areas with high precipitation, low evaporation, and relatively abundant surface water. The gravity-driven designs reduce energy use and greenhouse gas emissions at both sites by eliminating pumping for water recycling. The additional water and lime in Morococha's tailings facility also provide a net benefit to water quality by helping to neutralize acid drainage from abandoned historic mines and third party waste piles located upstream.

Water intensity is a measure of how much fresh water extracted we use in our mines on a unit basis of cubic meters of water per tonne of ore treated.

GRI: 303-3

Our new gold segment mines, Timmins, La Arena and Shahuindo, have lower water use intensity and reduced our company-wide intensity (excluding Huaron and Morococha) in 2019 from 0.30m3/tonne to 0.15m3/tonne of ore processed.

Our Dolores mine had a water use intensity of 0.19 m3/tonne of ore processed in 2019. The mine is located in the upper catchment of the Yaqui River, which has been identified as a catchment of extremely high water stress by both the World Resources Institute and the World Wildlife Fund for Nature. Total water use by the Dolores mine is less than 0.1 percent of the natural recharge to the Yaqui River catchment. Despite the minimal impact this operation has on water availability, we continue to search for initiatives to reduce our fresh water extraction use at Dolores, as with all our other operations.

WATER USE INTENSITY
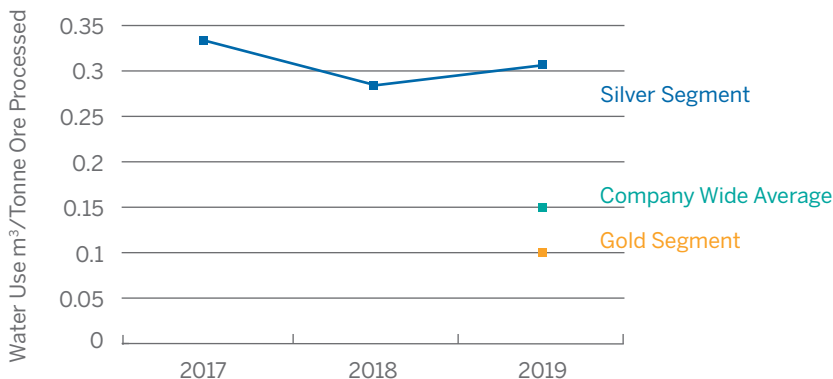
*Water use intensity chart excludes Huaron and Morococha mines whose water use intensity is reported separately.
*Water Use intensity was calculated using the new fresh water used to process ore divided by Tonnes of ore milled.

Next Steps

- Implement site-specific projects to minimize freshwater extraction use and water use intensity.
- Improve water use accounting at all operations.
- Develop a corporate environmental standard for water management.

Click here to see additional water performance data:
- GRI 303-3 Water withdrawal
- GRI 303-4 Water discharge

Climate, Energy, and Greenhouse Gas (GHG) Emissions

Why are climate, energy, and GHG emissions important?

Climate change is one of the biggest challenges currently facing the global community. Mining is an energy-intensive industry. Mines consume energy through extraction, processing, and transportation of products. Energy use, particularly through fuel combustion and electricity consumption, causes direct and indirect GHG emissions, which contribute to climate change. COI expectations around climate action in the mining industry include reducing the carbon footprint and responding to potential climate-related risks. For Pan American Silver, reducing emissions and energy use provides us with cost savings and environmental benefits beyond our operating boundaries, and contributes to the global response to climate change.

Our Approach

We formed a Climate Change Committee with senior management in 2019 to oversee implementation of the TCFD recommendations and our commitments to the World Economic Forum's CEO Climate Leaders Alliance. We continually search for ways to improve energy efficiency at our operations and development projects.

Programs and Initiatives

- Our Timmins operations have a dedicated Energy Manager who leads energy efficiency and GHG emission reduction programs at those operations and maintains our participation in provincial energy incentive programs.

- We completed the installation of a new mine shaft at Bell Creek mine, which reduces our energy use compared to business as usual.

- We implemented projects to install LED lighting at La Colorada, improve diesel power plant efficiency at Manantial Espejo, and optimize the use of ventilation fans at San Vicente, which reduced energy use compared to business as usual.

Monitoring and Evaluation

- TSM Energy and Greenhouse Gas Emissions Protocol – Sites have self-assessed against the protocol and are in the process of implementing action plans.

- Energy and fuel monitoring – We monitor energy and fuel use at all operations and estimate our greenhouse gas emissions on an annual basis. Our Mexican and Peruvian operations report independently calculated greenhouse gas inventories to national authorities.

POTENTIAL RISKS AND IMPACTS

Climate change effects on local communities and broader society

Physical risks of climate change, such as extreme weather events and water availability, and impacts on ecosystems and biodiversity

Potential new carbon regulations and rising energy costs in the transition to a low carbon economy

RELATED SDGS

Our Performance

Energy Use

We use energy to mine, move, and process ore and waste rock as well as for mine ventilation and dewatering. The type and quantity of emissions from our operations are determined by the energy source and the nature of the way we mine and process ores that is largely dependent on the mineralogy of the deposits. The energy used at our sites comes principally from diesel fuel for powering heavy equipment and in some limited cases electrical power generation or electricity directly from regional or national power supply grids. The grid energy we use is becoming cleaner and more efficient each year since the jurisdictions where we operate all have been increasing renewable energy generation. Grid electricity has a lower carbon footprint than onsite electricity generation.

GHG Emissions

Greenhouse gas emission trends for our operations generally track our energy use. However, in periods such as 2017-2018, when we connected the Dolores mine to the national grid and supplemented the La Colorada electrical supply connection, we experienced a decrease in total GHG emissions as direct (Scope 1) emissions were transferred to cleaner grid electricity (Scope 2). Our 2019 Scope 1 and 2 GHG emissions increased as expected due to the deepening and spatially distancing of our silver segment mines and the addition of the new gold segment operations from Tahoe.

GHG Emissions (Tonnes CO2eq)	2019 Total	2019 Silver Segment [3]	2018	2017
Scope 1 - Direct [1]	308,504	171,328	164,645	179,842
Scope 2 - Electricity [2]	142,099	126,739	123,880	113,971
Total Scope 1 and 2	450,603	298,067	288,525	293,813
Scope 3 - Value Chain	668,098	Not Estimated	Not Estimated	Not Estimated

(1) Pan American Silver used National Inventory Report Canada 2019 to calculate Direct (Scope 1) GHG emissions. The global warming potential (GWP) used for calculations is based on the information provided by the Government of Canada. Gases included in this calculation are CO2, CH4 and N2O.
(2) The GHG Protocol - purchased IEA tool 2019 for energy indirect (Scope 2) GHG emissions. Gases included in this calculation are CO2, CH4 and N2o.
(3) Silver segment consists of the six silver mines in existence prior to Pan American's acquisition of Tahoe.

This year we completed our first estimate of our Value Chain (Scope 3) emissions in accordance with the Greenhouse Gas Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard, using the Quantis Scope 3 Evaluator tool for all 15 categories except downstream processing of metal concentrates, which we found to be underestimated by the Evaluator. We instead obtained direct emissions data from our partner smelters in Peru and Mexico that process zinc and lead concentrates from our mines. These data allowed us to calculate more accurate downstream emissions for processing of our metal concentrates sold (124,601 tonnes CO2eq for 2019), which was used to complete the Scope 3 estimate.

This year we completed our first estimate of our Value Chain (Scope 3) emissions in accordance with the Greenhouse Gas Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

SCOPE 1, 2, AND 3 GREENHOUSE GAS EMISSIONS

(CO_2, CH_4, N_2O)

SCOPE 1
(direct)
308,504

SCOPE 2
(indirect)
142,099

SCOPE THREE
(indirect)
543,497

SCOPE THREE
(indirect)
124,601

WASTE MANAGEMENT

BUSINESS TRAVEL

CHEMICAL SUPPLIERS

MACHINERY SUPPLIERS

PURCHASED GOODS AND SERVICES

VEHICLES

BLASTING

ON-SITE ELECTRICITY GENERATION

MINE OFFICE & CAMPS

DEWATERING

MILLING

VENTILATION

PURCHASED ELECTRICITY

REFINERIES

SMELTERS

PROCESSING PRODUCTS

Upstream Activities

Reporting Company

Downstream Activities

The breakdown of our 2019 Scope 3 emissions (excluding metal concentrates) is shown in the following table.

SCOPE 3 BREAKDOWN	CO2-eq value (tonne/year)	
PURCHASED GOODS AND SERVICES	292,488	53.8%
CAPITAL GOODS	115,120	21.2%
FUEL- AND ENERGY-RELATED ACTIVITIES, NOT INCLUDED IN SCOPE 1 OR SCOPE 2	104,708	19.3%
UPSTREAM TRANSPORT	26,175	4.8%
WASTE GENERATED IN OPERATIONS	3,551	0.7%
BUSINESS TRAVEL	1,038	0.2%
EMPLOYEE COMMUTING	0.2	0.04%
UPSTREAM LEASED ASSETS	0.2	0.04%

As part of the climate action strategy led by our internal Climate Change committee, we will continue to improve on our emissions reporting and work with our partners on minimizing carbon emissions in our supply chain and downstream processing, product distribution, and product use.

GHG Emissions Intensity

The more ore we process at our sites, the more energy we use. Also, as our mines become deeper and spatially more distant, more energy is required for mine ventilation and dewatering, and more fuel is required to haul ore and waste rock over greater vertical and horizontal distances. We track the intensity of our GHG emissions (tonnes of Scope 1, 2 and 3 CO_2 equivalent per tonne of ore processed) to help us understand the energy efficiencies of our processes and the effects of using cleaner grid energy.

GHG EMISSIONS INTENSITY

(1) GHG Emissions intensity was calculated using the total Scope 1 and 2 GHG emissions divided by Tonnes of ore milled.

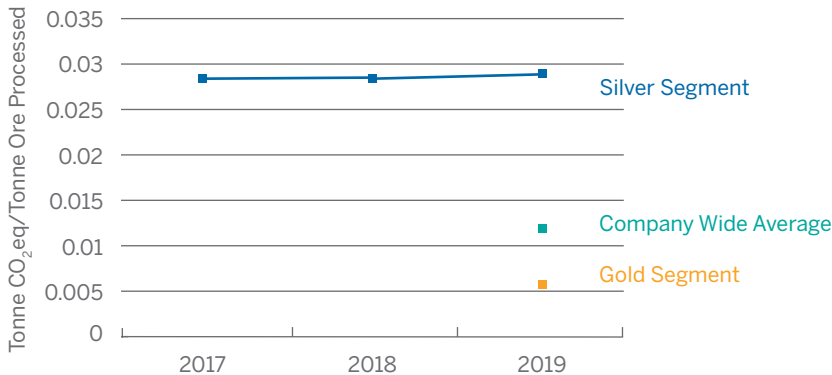The GHG emission intensity of our silver segment operations increased by 3.5% in 2019 to 0.029 tonnes CO2eq/tonne of ore processed. The main driver of the increase was Manantial Espejo operation, where fuel use increased for mine development and for transport logistics to and from the distant COSE and Joaquin satellite deposits. Other operations including Dolores, La Colorada, and San Vicente saw increased emissions intensity due to the deepening and distancing of those mines. The addition of the gold segment operations in Canada and Peru generated a lower company-wide GHG emissions intensity of 0.013 tonnes CO2eq/tonne ore processed, as the La Arena and Shahuindo operations are low energy intensity run-of-mine ore heap leaching operations with relatively short haulage distances.

Next Steps

- Develop and publish a CEO Climate Statement.
- Include a full climate risk disclosure in accordance with the Task Force on Climate-related Financial Disclosure (TCFD) recommendations in our 2021 reporting.
- Develop an Energy and GHG Emissions Corporate Environmental Standard.

Click here to see additional energy and emissions performance data:

- GRI 302-1 Energy consumption within the organization
- GRI 305-1 Direct greenhouse gas emissions (Scope 1)
- GRI 305-2 Indirect greenhouse gas emissions (Scope 2)
- GRI 305-3 Value Chain greenhouse gas emissions (Scope 3)

We track the intensity of our GHG emissions to help us understand the energy efficiency of our processes and the effects of using cleaner grid energy.

Climate Change

Climate Change and our Operations

Climate change driven by carbon emissions is an issue of global concern that will affect society, the environment, and economic development over the coming decades. We recognize that climate change is a potential threat to our business and many of our COIs, and we are committed to action to ensure an orderly transition to a prosperous low-carbon world.

In 2019 and early 2020, we conducted a study to evaluate the potential physical risks of climate change on our operations due to extreme weather events, impacts on water availability, and changes in rainfall and temperature patterns. The study considered a range of scenarios for each of our current operations, projects, and suspended operations, in line with TCFD scenario analysis recommendations. Scenarios considered in the analysis and evaluation of the latest global climate models included a 2 degree (IPCC RCP 2.6) scenario and a worst case 6 degree scenario (IPCC RCP 8.5). The evaluation concluded that none of our current assets are expected to experience climate changes effects over their current expected operating life that would be outside the existing design assumptions for storm events, temperature, and water availability. Some of our operations, however, are expected to see changes in rainfall and extreme weather events over longer periods, which needs to be considered in our mine closure and post-closure planning. We will be implementing the study recommendations by applying climate sensitivity analysis and using the best climate models available at the appropriate closure planning stage for each of our operations.   We also plan to update our company-wide risk evaluation as new data and models become available and conduct a transition risk analysis according to TCFD recommendations.

We know that the effects of climate change will potentially be greater on communities around our operations whose infrastructure is often not as robust as our mines. That is why we continue to invest in initiatives from water and energy supply systems to revegetation and surface water management structures to make our host communities more resilient to climate change.

We continue to invest in initiatives from water and energy supply systems to revegetation and surface water management structures to make our host communities more resilient to climate change.

The Role of Silver in the Low Carbon Economy

Silver will play an increasingly important role in the energy transition away from fossil fuels. Silver paste is a key ingredient of photovoltaic cells used in solar panels. Transparent silver-coated windows and silver-coated polyester sheets used to retrofit windows reflect the sun's rays and significantly reduce cooling costs and energy usage.

Silver production enables a viable solar energy industry, which contributes to avoiding a large amount of fossil fuel carbon emissions. We estimated the 2019 fossil fuel carbon emissions avoided that can be attributed to silver as a component in solar panels and found that the annual emissions avoided are greater than the total emissions generated by other end uses (jewelry, bars and coins, electronics, and brazing alloys).[1] We are working with the Silver Institute to improve general understanding of silver's unique role in low-carbon energy solutions.

Silver is clearly a key part of the solution to climate change and reducing global carbon emissions. However, the carbon benefits generated by our product do not in any way reduce our commitment and obligation to minimize the direct and indirect carbon footprint of our activities. We will continue to build and adapt our climate strategy over time to contribute to achieving the goals of the Paris agreement, net zero emissions, and a sustainable low carbon economy.

(1) Our calculation is a comparative analysis using attributable methods based on a World Resources Institute 2019 Working Paper "Estimating and reporting the comparative emissions impacts of products".

"Silver plays a crucial role in an electrified and low-carbon future, and the members of the Silver Institute are providing the metal needed to achieve society's goals for renewable energy production through solar panels and other sustainable technologies."

- Michael Steinmann

Biodiversity and Mine Closure

Why are biodiversity and mine closure important?

Mining activities require the development of infrastructure, which alters the natural features of the local landscape. Open pit mines, processing plants, mine waste rock facilities, ancillary facilities, supporting infrastructure construction and roads can damage habitat, impact individual species, and affect overall ecosystem health. Mines have finite lifespans, and mining companies are responsible for managing their impacts not only during mine operations, but also after mine closure. This means restoring land to a beneficial state and ensuring no health and safety risks remain from the mining wastes, equipment, and infrastructure left behind. At Pan American Silver, our desire to leave a positive beneficial legacy in our host communities means that we engage local communities and governments in planning mine closure before a mine is in operation.

Hydroseeding for reclamation of waste rock dumps at Manantial Espejo.

Our Approach

We ensure that protected and critical habitats and species are identified and appropriately protected before, during, and after mining. In mine closure our objective is to return the land disturbed by our activities to as close to its natural and beneficial state as possible and create viable habitats for native species of the local area. We work to make the transition from operations to closure as efficient as possible by starting the planning process early and collaborating with local communities. Our approach includes:

System

- Biodiversity and Mine Closure Corporate Environmental Standard – This standard provides best practice guidance for our sites.

Programs and initiatives

- Ecosystem baseline studies – We conduct detailed flora, fauna, and ecosystem baseline studies to identify potentially sensitive habitats and species prior to commencement of mining and/or significant changes to our operations.

- Reclamation plans – Each site's reclamation plan includes measures to enhance biodiversity conservation.

- Biodiversity management plans – Each site has a plan to manage biodiversity during construction, operation, and closure. Where protected species have been identified[1], we implement detailed impact assessments, management plans, and conservation strategies.

- Closure plans – Each mine has a closure plan, and we update detailed closure costs estimates for all mines and projects on an annual basis.

- Engagement – We engage with local communities and other COIs to ensure that their closure and post-closure expectations are considered.

Monitoring and evaluation

- TSM Biodiversity Conservation Management Protocol and Mine Closure Framework – Our mines self-assessed their performance against the protocol and are implementing action plans for improvement.

- Biodiversity monitoring – We monitor biodiversity at all our sites to identify potential new impacts and compare results with our baseline studies.

- Post-closure monitoring and maintenance – All our closure plans include many years of post-closure monitoring to ensure reclamation objectives are achieved.

> In mine closure our objective is to return the land disturbed by our activities to as close to its natural and beneficial state as possible and create viable habitats for native species of the local area.

(1) Protected species, as defined by local legislation and/or the International Union for Conservation of Nature, have been identified near our Canadian, Mexican, Peruvian and Argentine operations.

Our Performance

Minimizing Impacts on Biodiversity

None of our mines are located in areas that are designated as having high biodiversity value as defined by GRI.[1] Land owned by our Huaron mine in Peru is adjacent to the Huayllay "Stone Forest" National Sanctuary (a natural geological rock formation resembling pillars and other structures);[2] however, the mine operation is located more than 4km from the Sanctuary boundary, and our nearest infrastructure, a camp and water treatment plant, is located over 0.7km from the Sanctuary, beside the town of Huayllay.

Baseline studies and monitoring have not identified any significant impacts on biodiversity from our operations. In fact, for some of our sites, ongoing monitoring shows an increase in biodiversity as well as in flora and fauna population densities following years of impacts from agriculture and ranching activities. This occurs where we have purchased and secured large areas of land but require only a small portion for our operations. The remaining unused land is protected from grazing and hunting activities that has led to significant natural habitat recovery. For example, in Argentina we own more than 57,000 hectares of land that is located outside of our operations and is protected from impacts such as sheep grazing and hunting. Flora and fauna surveys on this land over recent years have shown an increase in abundance and diversity of species in the ecosystem. At our Dolores mine we continue to restore 40 hectares of community land that was previously affected by cattle over-grazing and natural erosion in order to provide habitat for native fauna.

Reclamation

We conduct progressive closure activities, reclaiming disturbed land and waste rock facilities once they are no longer required by our operations. At the end of the mining lifecycle, we create landforms that integrate back into the natural landscape and provide quality habitat. This requires removing physical infrastructure and reclaiming remaining waste rock and tailings storage facilities. By the end of 2019, the accumulated area disturbed and not yet reclaimed by all our operations was 3,130 hectares. We reclaimed 126 hectares, primarily at Alamo Dorado.

> We conduct progressive closure activities, reclaiming disturbed land and waste rock facilities once they are no longer required by our operations.

(1) Defined by GRI as an area not subject to legal protection, but recognized for important biodiversity features by a number of governmental and non-governmental organizations.
(2) Huaron's operations are approximately 300ha in size and located southwest of the Huayllay Sanctuary, which is a "stone forest" formed by volcanic activity.

GRI: 304-1, 304-2, 304-3, MM1, MM1

Alamo Dorado Tailings Dry Stack: Before

Alamo Dorado Tailings Dry Stack: After
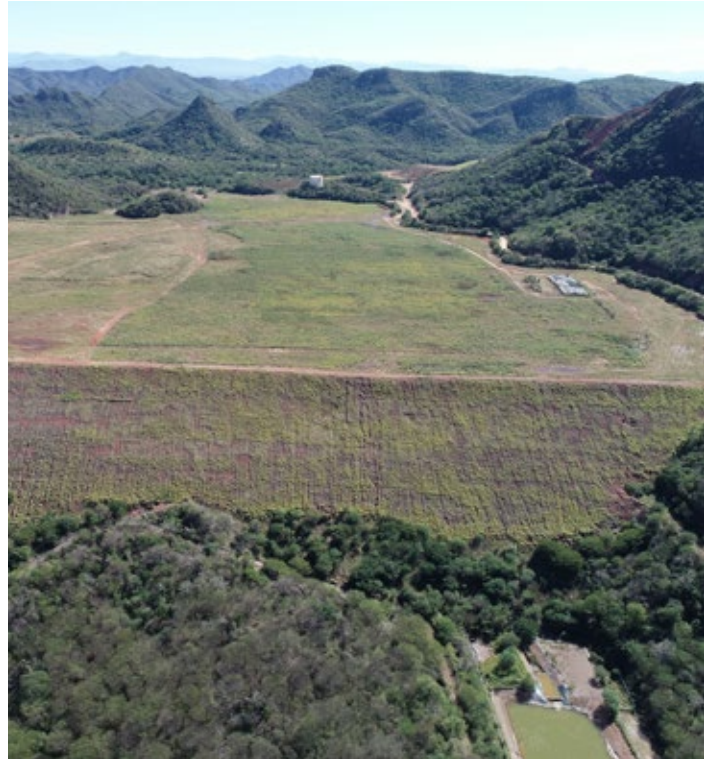
Mine Closure

Production at our Alamo Dorado mine ceased in 2017, and we completed the active physical closure process during early 2019[1]. We are now in the post-closure stage monitoring, which entails on-going environmental sampling and analysis to evaluate erosion, revegetation survival, habitat recovery, water quality, biodiversity, and geotechnical & geochemical stability. We currently manage water treatment at the site to mitigate acid rock drainage while passive treatment systems are being established.

We continue to apply the lessons learned from our Alamo Dorado closure project to annual Closure and Decommissioning Liability estimates for all our mines and projects. In 2019, we successfully incorporated the new Shahuindo and La Arena operations into our standard estimating methodology.

Next Steps

- Continue site-level implementation of the TSM Biodiversity Conservation Management Protocol and our Corporate Environmental Standard on Biodiversity and Mine Closure.
- Continue post-closure monitoring and maintenance at Alamo Dorado.
- Update closure planning for Manantial Espejo and La Arena.

Click here to see additional biodiversity performance data:

- MM1 Amount of land disturbed or rehabilitated
- 304-3 Habitats protected or restored

(1) Our closure plan was developed in collaboration with local communities and landholders and was the first ever to be formally approved by Mexican authorities under recently established procedures.

Tailings and Waste Management

Why are tailings and waste management important?

Mining operations generate waste rock (non-economic material) that can be in the form of open pits, underground portals and shafts, waste rock dumps, processed ore piles, tailings or sludges. Tailings dam failures in other parts of the world have demonstrated the potential for damage to communities, employees, and the environment. As a result, safe management of tailings facilities is a global priority for the mining industry, as well as governments, insurers, and investors. Mining processes also generate hazardous and non-hazardous waste materials, such as solvents and scrap metal. Pan American Silver works hard to ensure stable and long-term management of tailings and other mining wastes, as well as proper waste management and disposal. Both are imperative to maintaining community and environmental health, and essential to our social acceptance.

Material Topic	Tailings and waste management
Sub-topic	Tailings facility management
	Waste rock dumps and heap leach facilities
	Industrial and domestic waste management
	Spills
Definition	Managing tailings facilities and waste disposal
Feedback From COIs	Governments, communities, investors, and insurers want to know that our tailings facilities are safe and that our management aligns with global best practices.
How We're Responding	We expanded our disclosures on tailings management in response to the Investor Mining and Tailings Safety Initiative.
	We actively advocate for improved tailings management through Mining Association of Canada (MAC).
	We have set and achieved goals on Significant Environmental incidents, including large spills, and reducing hazardous and non hazardous waste.

POTENTIAL RISKS AND IMPACTS

Tailings, waste rock, or heap leach facility failure could result in impacts on human and ecosystem health, property, and community livelihoods

Potential spills, acid drainage, or metal leaching resulting in water and soil contamination

RELATED SDGS

3 GOOD HEALTH AND WELL-BEING

6 CLEAN WATER AND SANITATION

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Our Approach

We take responsible management of tailings, heap leach pads, waste rock dumps, spills and solid waste very seriously. We work to ensure that all tailings storage facilities, dams, heap leach pads, and waste stockpiles are robustly designed, built, operated, maintained and closed in accordance with the Towards Sustainable Mining (TSM) Tailings Management protocol, the Canadian Dam Association (CDA) guidelines, and known global best practices in order to prevent any incidents or failures. Our tailings storage facilities and water dams are subject to routine inspections, audits, geotechnical and environmental monitoring, annual reviews, and independent reviews to continually improve systems and methods in order to minimize potential harm associated with these long-term facilities.

Industry initiatives

- Mining Association of Canada (MAC) Tailings Working Group – We participate in this working group, which is responsible for developing best practice industry guidance.
- Global Tailings Review – Through MAC we have participated in the Global Tailings Review, an initiative of the International Council on Mining and Metals, the United Nations Environment Programme, and the Principles for Responsible Investment aimed at establishing global best practices for tailings storage facilities.

Systems

- TSM Tailings Guidelines and CDA Dam Safety Guidelines – We use the guidelines to conduct risk assessments and manage our facilities.
- Tailings, Water, and Heap Leach Facilities Corporate Environmental Standard – This standard provides guidance for sites on proper design, monitoring and maintenance of critical facilities.

Programs and initiatives

- Independent tailings storage facilities safety reviews – We conduct safety reviews and audits in order of priority based on a facility risk assessment.
- Predictive modeling – We complete predictive models based on geochemical data and studies for acid drainage and metal leaching from tailings, waste rock, and heap leach facilities prior to mining and update those studies through regular monitoring during operation and closure.
- Waste management plans – Each mine has a site-specific hazardous and non-hazardous waste management plans that include actions to maximize waste reuse and recycling.

We take responsible management of tailings, heap leach pads, waste rock dumps, spills and solid waste very seriously.

Monitoring and evaluation

- TSM Tailings Management Protocol, Tailings Guide, and Operation, Maintenance and Surveillance Guide – Each site has conducted a review against the protocol and guidance and developed a corresponding action plan to implement improvements.

- Geotechnical and environmental monitoring – We conduct regular monitoring at our tailings, water, waste rock, and heap leach facilities.

- Water and soil quality monitoring – Operations monitor downstream water and soil quality to ensure compliance with predictive models and water quality regulations.

- Waste monitoring – We monitor waste generation and disposal at all operations.

Accountability

- Our Vice President of Mineral Processing, Tailings & Dams, oversees the performance of our critical facilities.

Our Performance

Tailings Facilities Management

Tailings are the by-products of precious and base metal ore processing and mineral and metal extracting. Tailings are created after the ore is mined and hauled to a processing plant where it is crushed, ground and processed in wet slurry to extract precious or base metals using leaching or flotation. The residual non-economic ground rock is the tailings. Tailings facilities are used to store the tailings and allow separation of water for recycling or discharge

Tailings are storage with one of the following configurations:

- **Sub-aerial:** Above ground storage facilities where tailings may be in slurry, thickened, or paste form with an internal pond of clear water. Dry stack placement is another type of sub-aerial storage where water is separated by thickening and filtration before dry tailings are placed into a stack.

- **Sub-aqueous:** Underwater storage where tailings are entirely submerged within an existing pond.

Tailings facilities are often based on a dam structure which can be constructed using upstream, centerline, or downstream methods, or combination of these methods. All tailings dams begin with a starter dyke, which is raised periodically as tailings are deposited in the facility.

- In upstream construction, the dam is raised with the crest moving upstream over in the deposited tailings.

- In centerline construction, the dam is raised vertically from the starter dam.

- In downstream construction, the dam is raised by shifting the crest downstream over structural fill on the downstream face.

We store tailings in specialized engineered facilities using construction methods that vary according to the context of each mine and local conditions. Our objective is to ensure that our facilities and systems are safe and designed, built, operated and closed in accordance with the Canadian Dam Safety Guidelines and the TSM Tailings Management Protocol. During 2019, Pan American Silver managed seven operating tailings facilities, one dry stack tailings facility at the Escobal mine, and one large water storage dam at Dolores. Of the seven operating facilities, three are downstream raise type, one is downstream-centerline raise type, two are centerline type and one is downstream-upstream-centerline raise type.

During the year, we completed the first cycle of independent safety reviews of tailings and water storage facilities at former Pan American Silver operations. An independent safety review of our new Bell Creek plant tailings was conducted in 2018, prior to our acquisition. Our newly acquired Escobal mine is currently on care and maintenance, while two of our other newly acquired mines have heap leach pads. Independent safety reviews will continue on a five-year basis, depending on the facility risk profile. In 2020, we will conduct independent safety reviews of facilities at Huaron and Alamo Dorado, and a safety review with the Engineer of Record at Escobal.

Operating Mine	Type of Tailings Facility and Heap Leach Pads	Tailings Storage Raise Type	Independent Facility Safety Review
Bell Creek	1 operating tailings facility	Downstream-Centerline	2018
Shahuindo	1 operating heap leach pad	N/A	2020
La Arena	1 operating heap leach pad	N/A	2020
Dolores	1 operating water storage dam and heap leach pads	N/A	2017
La Colorada	2 operating tailings facilities	Downstream & Downstream-Upstream-Centerline	2019
Huaron	1 operating tailings facility	Centerline	2014 and 2015
Morococha	1 operating subaqueous tailings facility	Downstream	2018
San Vicente	1 operating tailings facility	Centerline	2017
Manantial Espejo	1 operating tailings facility	Downstream	2018

During the year, we completed the first cycle of independent safety reviews of tailings and water storage facilities at former Pan American Silver operations.

GRI: MM3

In response to the Investor Mining and Tailings Safety Initiative conducted during 2019, we have provided additional information on our tailing facilities for the Public Tailings Facility Database which is updated periodically.

As shown in the above table, we also operate heap leach facilities at our Dolores, Shahuindo and La Arena mines. These mines utilize sodium cyanide heap leaching technologies for metal extraction process. In order to ensure best practice, these sites are applying the relevant standards set out in the TSM Tailings Protocol. We will conduct independent safety reviews of the heap leach pads at Shahuindo and La Arena in 2020 subject to COVID-19 pandemic impact adjustments for site visits.

All our mines have waste rock dumps except La Colorada where all waste rock is used as backfill in the underground mine. San Vicente and Manantial Espejo have waste rock dumps on surface however all waste rock generated in 2019 was used as underground backfill.

In 2019, our sites focused on the implementation of our Tailings, Water, and Heap Leach Facilities Corporate Environmental Standard and improving their performance on the 2019 TSM Tailings Protocol, which includes enhanced risk-based controls. Our sites are also updating their operating manuals and emergency preparedness and response plans to comply with the TSM protocol and guidelines.

We achieved our 2019 goal related to environmental incidents and had no spills that are considered "Significant Environmental Incidents". Three reportable spills occurred at our operations. A gear oil spill happened at our Timmins operation and two spills from our tailings transport pipeline occurred at San Vicente. All spills were immediately cleaned up, reported and investigated with corrective actions identified in all cases. Corrective actions related to the Timmins spill have been fully implemented and all short and medium term actions are complete at San Vicente. Our longer-term corrective action of replacing the entire tailings transport system at San Vicente is still in implementation and due for completion by the end of 2020 subject to COVID-19 pandemic impact adjustments.

Waste Management

Our operations generate quantities of hazardous and non-hazardous materials, which require end-of-life recycling or disposal. When possible, we recycle or reuse these products at our operations. For example, used oil can become a heating fuel if using equipment that ensures complete combustion and emissions compliance. For other waste, we follow local regulations in disposing of these materials either on site or at local certified disposal facilities.

TYPICAL WASTE TYPES

Non-hazardous Waste	Hazardous Waste
Tires	Used oils and solvents
Scrap metal	Batteries
Domestic waste (food waste, paper and plastics)	Reagent packaging
	Lighting standards
Wood waste	

In 2019, our sites focused on the implementation of our Tailings, Water, and Heap Leach Facilities Corporate Environmental Standard and improving their performance on the 2019 TSM Tailings Protocol.

TYPES OF WASTE AND DISPOSAL METHODS 2019 - COMPANY WIDE
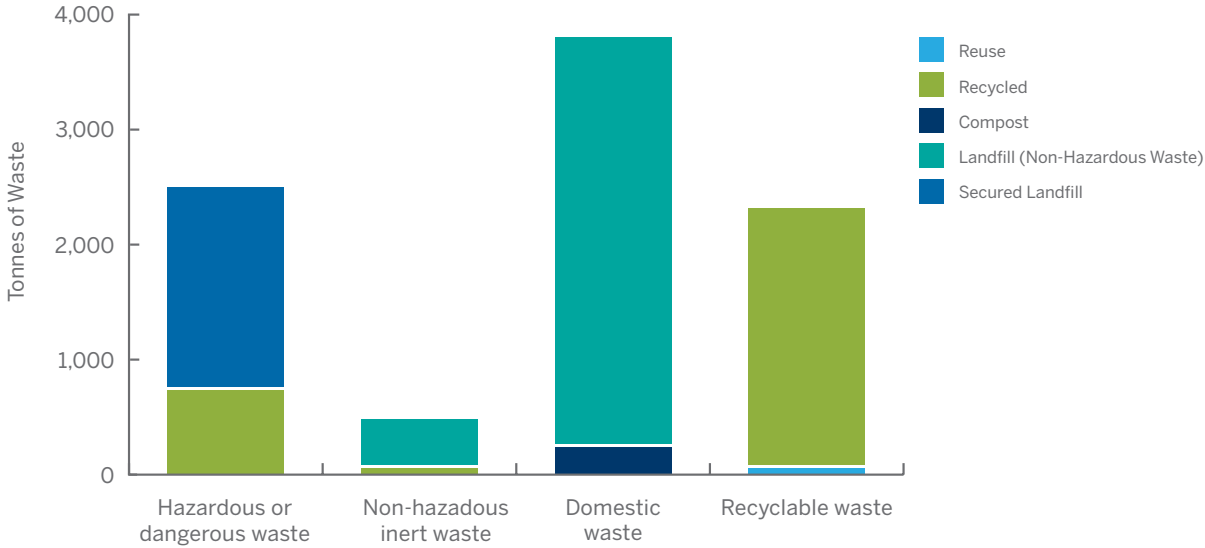
In 2019, our waste management plans and worker training programs at our silver segment mines were successful in reducing our hazardous, non-hazardous and domestic waste generation and increasing reuse and recycling. Our Morococha mine has a series of recycling agreements with local social welfare NGOs in Lima, where they coordinate the sale of our recyclable materials.

	2019 (Silver Segment Only)	2018	2017
Hazardous or dangerous waste (non recyclable)	749	999	1023
Non-hazardous inert waste	465	925	1288
Domestic waste to landfill	1610	1712	1169
Reuse	55	320	608
Recycling	1803	4190	1770

Note: Silver segment consists of the six silver mines in existence prior to Pan American Silver's acquisition of Tahoe.

Next Steps

- Continue site-level implementation of our Tailings, Water, and Heap Leach Facilities Corporate Environmental Standard and the TSM Tailings Management Protocol.

- Conduct independent safety reviews of facilities at Huaron and Alamo Dorado, as well as heap leach pads at Shahuindo and La Arena.

- Conduct a follow-up on the recommendations of previous independent tailings dam reviews.

Click here to see additional waste and tailings performance data:

- GRI 306-2 Waste by type and disposal method
- GRI 306-3 Significant spills
- GRI MM3 Total amounts of over burden, rock, tailings, and sludges

Business Ethics and Anti-Corruption

Why are business ethics and anti- corruption important?

The mining industry operates in a complex and demanding legal and regulatory environment under cyclical market conditions. Mining operations can be located in politically unstable countries. This instability can create economic and regulatory uncertainty, which may provide opportunities for corruption. Globally, the industry is experiencing increased public and government pressure to combat bribery and corruption by improving good governance and transparency of payments made to governments. As a Canadian company listed on the TSX and NASDAQ stock exchanges, Pan American Silver must comply with securities regulations and exchange rules as well as requirements designed to protect investors and the integrity of financial markets. We also must adhere to applicable legislation in the jurisdictions where we operate. Conducting our activities ethically and applying industry best practices at home and abroad are a core component for building and trust with our communities of interest and maintaining our social licence.

Material Topic	Business ethics and anti-corruption
Sub-Topic	Tax transparency
Definition	Ensuring good corporate governance through ethical business practices and anti-corruption measures.
Feedback From COIs	The public and governments want increased transparency on issues related to corporate governance.
	Analysts and investors are interested in our approach to supplier screening and selection.
How We're Responding	We have a set of policies and guidelines that, combined, provide the fundamental tenets of ethical business practices.
	We approved a Supplier Code of Conduct and are enhancing our supplier due diligence processes.

POTENTIAL RISKS AND IMPACTS

Unanticipated changes to laws or regulations

Corruption inside our business or by third parties

RELATED SDGS

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Our Approach

Pan American Silver is committed to high standards of corporate governance, ethics and transparency in the conduct of business. Our Global Code of Ethical Conduct and related policies and guidelines combine to provide the fundamental tenets of ethical business practices, set corporate expectations, and guide us to consistently operate responsibly, and in compliance with applicable laws, rules and regulations. We approach tax matters by adhering to local laws and regulations and deal with local tax authorities in a co-operative and open manner.

Policy

- Global Code of Ethical Conduct (the Code)
- Global Anti-Corruption Policy (the Policy)
- Gifts and Hospitality Guidelines (the Guidelines)
- Supplier Code of Conduct (Supplier Code)

Programs and initiatives

- Communication – All new employees receive the Code and Policy upon commencement of employment. The Code is posted in key locations at our offices and sites. We inform our key contractors and suppliers of our Supplier Code.
- Training – We provide training for employees in roles that may be exposed to corruption risk, such as procurement teams and personnel involved in government relations.
- Whistleblower hotline – Directors, officers, and employees can report actual or potential breaches of the Code or Policy via phone or web, in English or Spanish, 24 hours a day, 365 days a year. The hotline is managed by an independent service provider.

Monitoring and compliance

- The Board, officers, executives and all senior management[1] certify compliance with the Code and the Policy annually.
- The legal and compliance teams review and investigate all complaints made through the whistleblower hotline.
- Corporate and site-level compliance and audit functions monitor compliance with the Code, Policy, Guidelines, and relevant procedures.
- The Board's Audit Committee and Nominating and Governance Committee monitor compliance with the Code.

Accountability

- The Board provides oversight of the Code and updates the Code, Policy, and Guidelines as necessary to ensure we are meeting evolving good governance and ethics practices.
- The General Counsel oversees our legal compliance and anti-corruption practices.

Pan American Silver is committed to high standards of corporate governance, ethics and transparency in the conduct of business.

(1) Includes executive officers, vice presidents, country managers, directors, operation and unit managers.

Our Performance

All directors, officers, and employees are required to comply with our Code, Policy, and Guidelines. They are also responsible for reporting any actual or potential unethical or illegal activity.

Anti-corruption

In 2019, all Pan American Silver operations were assessed for risks related to corruption. Our assessment process included:

- Risk scoping and fraud risk assessment
- Quarterly management and officer questionnaires
- Internal audit assessment and reporting
- Whistle blower system
- Senior management meetings
- Consultations with in-house legal staff
- Cyber security assessments
- Entity-wide fraud risk identification interviews

Through this assessment, we identified our most significant potential corruption-related risks as: fraud perpetrated by (or in collusion with) third-party contractors/suppliers; raw materials or supply inventory theft; and government transactions and corruption.

During the year we also:

- Rolled out our Code and Policy to all acquired Tahoe operations.
- Conducted live training at all operations and offices on our Code and Policy.
- Implemented internal controls and questionnaires for employees, suppliers and business partners in order to identify ethics risks or conflicts of interests.
- Developed and approved the Supplier Code.

Reporting and whistleblower hotline

Our whistleblower hotline service enables directors, officers, and employees to anonymously and confidentially report any actual or suspected unethical or illegal activity or violations, including violations of the Code or policies. Non-employees can submit complaints of an ethical, accounting or audit nature by mail, marked private and confidential, to Pan American Silver's General Counsel.

Every report received is reviewed by the General Counsel and compliance team, and appropriate measures are taken. There were no confirmed incidents of corruption through the Whistleblower hotline and no employee or contractors were dismissed for corruption incidents of breach of the code. The Board did not grant any waivers from Code requirements to directors or executive officers during the year.

Supplier Code

We believe that a strong and ethical relationship with our suppliers contributes to business success. In 2019, we released our Supplier Code, which clearly sets out the expectations that our suppliers, and business partners will uphold good governance standards. These standards include:

> We believe that a strong and ethical relationship with our suppliers contributes to business success.

GRI: 205-1, 205-3

- Complying with applicable laws
- Conducting business in an ethical and environmentally responsible manner
- Respecting the rights, cultural diversity and customs of local communities and indigenous peoples
- Complying with Pan American Silver's Global Anti-Corruption Policy and Gifts and Hospitality Guidelines, and Global Human Rights Policy

Suppliers are responsible for ensuring that their employees, contractors, subcontractors, and any agents act in a manner consistent with the Supplier Code. For certain high-risk contracts, we incorporate specific anti-corruptions provisions into the contract terms. We maintain the right to terminate contracts with suppliers that fail to abide by the Supplier Code. We are in the process of implementing a due diligence software program to review and monitor supplier relationships.

Tax Transparency

Pan American Silver pays taxes on taxable income generated through operations. Our approach to tax matters is aligned with the principles set out in our Code. In all jurisdictions in which Pan American Silver operates, we:

- Comply with local tax laws and regulations, including filing appropriate tax returns and related reports on a timely basis. We ensure that tax returns and other reports filed are accurate and complete.
- Seek to maintain a good working relationship with local tax authorities. We respond to all requests for additional information in a timely, transparent, and accurate manner. If disputes arise, we work with the tax authorities to resolve them in an efficient and fair manner.
- Undertake tax planning to support the growth and development of the business in accordance with all applicable laws and regulations.

We have an offshore financial entity that provides insurance against certain risks at our worldwide mining operations. The activities of this entity are fully disclosed, as required, under the tax laws and regulations of the jurisdictions in which we operate.

We engage in numerous inter-company transactions, executing all such transactions using arm's length transfer prices. In accordance with the Organization of Economic Co-operation and Development (OECD), we make every effort to ensure that these arm's length transfer prices are supported by the necessary contemporaneous documentation.

Pan American Silver complies with the Canadian Extractive Sector Transparency Measures Act (ESTMA), requiring public reporting of payments made to governments. Our ESTMA reports can be accessed from our website.

Next Steps

- Roll out of our supplier due diligence process to ensure compliance with our Supplier Code and related policies.

- Develop an online training platform to incentivize ethical behavior and improve employee understanding of the anti-corruption program.

- Implement internal controls and questionnaires for employees, suppliers and business partners in order to identify ethics risks or conflict of interests.

GRI Data Tables

Total number of employees and contractors[1]	Employees[2]									Contractors			Total Workforce
	Administration		Geology		Engineering		Labour		Total Employees	Fixed[3]	Temporary[4]	Total Contractors	
	Male	Female	Male	Female	Male	Female	Male	Female					
Corporate Office	25	19	5	1	11	1	0	0	**62**	1	0	**1**	**63**
Canada	102	36	10	3	5	1	471	20	**648**	145	0	**145**	**793**
Peru	254	88	42	8	208	6	2493	31	**3130**	1,055	2,344	**3,399**	**6,529**
Mexico[5]	169	54	19	6	178	15	1169	43	**1653**	821	580	**1,401**	**3,054**
Guatemala[5]	69	22	1	0	2	0	70	4	**168**	0	140	**140**	**308**
Bolivia	89	17	8	2	53	3	277	6	**455**	145	74	**219**	**674**
Argentina[5]	116	26	5	3	111	6	385	27	**679**	150	0	**150**	**829**
Total	824	262	90	23	568	32	4865	131	**6,795**	2,317	3,138	**5,455**	**12,250**

(1) Data per country includes mines, offices, exploration and project sites.
(2) Includes permanent employees only.
(3) Includes contractors with fixed term employment and whose activities are non core of the business, but are needed to operate, eg. catering, security, housing, cleaning, fuel supply, etc.
(4) Includes contractors who are hired to perform a temporary activity, and whose contract has a beginning and an end date, eg. project construction, drilling, sampling for temporary exploration.
(5) Includes Escobal, Alamo Dorado and Navidad.

Total number of employees and contractors by region[1]	Employees					Contractors			
	Direct Influence Area[2]	Indirect Influence Area[3]	National Influence Area[4]	Foreign	Total	Direct Influence Area	Indirect Influence Area	National Influence Area	Total
Corporate Office[5]	48	14	0	0	**62**	1	0	0	**1**
Canada	617	30	1	0	**648**	145	0	0	**145**
Peru	966	958	1206	0	**3130**	831	1311	1257	**3399**
Mexico[6]	1235	44	373	1	**1653**	1366	35	0	**1401**
Guatemala[6]	57	19	89	3	**168**	140	0	0	**140**
Bolivia	211	134	109	1	**455**	73	75	71	**219**
Argentina[6]	363	97	215	4	**679**	34	97	19	**150**
Total	3497	1296	1993	9	**6795**	2590	1518	1347	**5455**

(1) Data per country include mines, offices, exploration and project sites.
(2) Direct influence area refers to the personnel who reside near the operation units.
(3) Indirect Influence area refers to the personnel who reside in the same state or department in which the operating unit is located, but are not in the direct influence area.
(4) National influence area refers to the personnel residing in other states or departments within the country from where the unit is located.
(5) At the corporate level, direct influence area includes personnel who reside in Canada, and indirect influence area includes personnel who report to a manager or senior manager from corporate, but work from outside of Canada.
(6) Includes Escobal, Alamo Dorado and Navidad.

102-13   Memberships or associations

Canada and USA
- Mining Association of Canada
- Women in Mining
- Women Who Rock
- The Silver Institute
- Prospectors and Developers Association of Canada (PDAC)
- Northwest Mining Association
- Engineers Without Borders
- UNICEF Canada
- Ontario Mining Association
- Northern Industrial Electricity Rate Program

Peru
- Patronatro Plata del Peru
- Instituto de Minas del Peru
- Sociedad de Minería, Petróleo y Energía
- EITI Peru
- Senati
- Sencico

Mexico
- Centro Mexicano Para la Filantropía (CEMEFI)
- Alianza para la Responsabilidad Social en México (AliaRSE)
- Fundación del Empresariado Chihuahuense (FECHAC)
- Cámara Minera de México (CAMIMEX)
- La Cámara de Comercio del Canadá en México, A.C. (CANCHAMM)
- Asociación Mexicana en Dirección de Recursos Humanos, A.C. (AMEDIRH)
- Clúster Minero de Chihuahua (CLUMIN)
- Clúster Minero de Zacatecas (CLUSMIN)
- Clúster Minero de Sonora
- Cruz Roja Durango

Argentina
- Cámara Argentina de Empresas Mineras (CAEM)
- Colegio Argentino de Ingenieros en Mineras (CADIM)
- Organismo Latinoamericano de Minería (OLAMI)
- Consejo Empresario Argentino para el Desarrollo Sostenible (CEADS)
- Green Cross
- Fundación IAN (diversity and inclusion)
- Fundación LOGRAR (local development)
- Fundación LEER (education initiatives)
- Fundación Tendiendo Puentes (inclusion)
- Fundación Codo a Codo (education initiatives at Gobernador Gregores)

Bolivia
- Asociación de Mineros Medianos
- Amcham Cámara Americana de Comercio
- Colegio de Geólogos de Bolivia
- Cámara de Comercio de Bolivia
- Confederación de empresarios privados de Bolivia
- Cámara de Exportadores de Bolivia
- Cámara de Comercio Boliviano Canadiense

Guatemala
- Cámara de Comercio Guatemalteco Americana (AMCHAM)
- Cámara de Industria de Guatemala (CIG)
- Cámara de Comercio de Guatemala (CCG)
- Cámara de Comercio Guatemalteco Canadiense (CANCHAM)
- Gremial de Recursos Naturales Minas y Canteras (GreNat)

2019 Performance	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo
Water	Implemented projects to improve effluent treatment plant and discharge system capacity to better manage spring snowmelt	Made improvements to monitoring of water use and completed staff, contrators, and community training on water conservation.	Completed water use monitoring network and replaced water storage ponds with tanks, reducing evaporation and leakage.	A sediment control and water management plan was implemented and a Water Managment Committee established	A sediment control and non-contact water management plan was implemented and a Water Managment Committee was established	Flowmeters were installed to improve water use monitoring in the plant and mine.	Increased recycling of process plant water and installed flow meters to improve water monitoring.	Reduced freshwater consumption from external sources by 10% due to increased reuse of water from the tailings dam, mine water treatment plant and wastewater treatment plant.	Reduced water use for road watering and camp use however water use intensity for mineral processing increased.
Energy	Reached target of 2,000 MWh of energy savings via implementation of projects including energy efficient equipment, process optimization, and staff training and engagement.	External verification of GHG emissions estimates was performed.	Commenced replacement program for LED lighting which resulted in annual reduction of 144 tonnes of GHG emissions	84 solar panels were installed for heating in the mine camps. Completed independent inventory of GHG emissions	Completed independent inventory of GHG emissions	Solar panels were installed for lighting in the new cafeteria and one workshop. Completed independent inventory of GHG emissions	Completed independent inventory of GHG emissions	Reduced energy use for underground mine ventilation by putting fans on standby on non work days	Achieved target efficiency of on-site electrical power generation
Biodiversity	Advanced implementation of TSM Biodiversity Protocol	Advanced implementation of TSM Biodiversity Protocol	Advanced implementation of TSM Biodiversity Protocol	Advanced implementation of TSM Biodiversity Protocol	Advanced implementation of TSM Biodiversity Protocol	Advanced implementation of TSM Biodiversity Protocol	Advanced implementation of TSM Biodiversity Protocol	Advanced implementation of TSM Biodiversity Protocol	Advanced implementation of TSM Biodiversity Protocol

2020 Goals	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo
Water	Implement initiatives that can potentially reduce water use ratio for mill operations	Complete evaluation of specific water conservation projects and set measurable future target	Complete evaluation of specific water conservation projects and set measurable future target	Reduce water use for camp use and evaluate reduction of water for road dust suppression based on air quality monitoring trends	Reduce water use for camp use and evaluate reduction of water for road dust suppression based on air quality monitoring trends	Reduce water use for camp and road dust suppression	Reduce water use for camp and road dust suppression	Reduce water use for processing from external sources, for road dust suppression, and for camp use	Reduce water use for road dust suppression and camp use
Energy	Maintain eligibility in Northern Industrial Electricity Rate Program

Achieve 3,750 MWh of electricity savings to comply with Energy Manager Incentive

Succeed in load shedding all top 5 Provincial peaks for Global Adjustment | Complete evaluation of specific energy conservation projects and set measurable future target | Complete evaluation of specific energy conservation projects and set measurable future target | Complete evaluation of specific energy conservation projects and set measurable future target

Complete employee and contractor training on energy conservation. Reduce energy use in camps | Complete evaluation of specific energy conservation projects and set measurable future target

Complete employee and contractor training on energy conservation. Reduce energy use in camps | Complete evaluation of specific energy conservation projects and set measurable future target

Complete employee and contractor training on energy conservation. Reduce energy use in camps | Complete evaluation of specific energy conservation projects and set measurable future target

Complete employee and contractor training on energy conservation. Reduce energy use in camps | Complete evaluation of specific energy conservation projects and set measurable future target | Increase fuel efficiency for on-site power generation through improved maintenance programs |
| Biodiversity | Complete implementation of TSM Biodiversity Protocol to Level A by end of 2022 or earlier | Complete implementation of TSM Biodiversity Protocol to Level A by end 2020 | Complete implementation of TSM Biodiversity Protocol to Level A by end 2020 | Complete implementation of TSM Biodiversity Protocol to Level A by end of 2022 or earlier | Complete implementation of TSM Biodiversity Protocol to Level A by end of 2022 or earlier | Complete implementation of TSM Biodiversity Protocol to Level A by end 2020 | Complete implementation of TSM Biodiversity Protocol to Level A by end 2020 | Complete implementation of TSM Biodiversity Protocol to Level A by end 2020 | Complete implementation of TSM Biodiversity Protocol to Level A by end 2020 |

102-41 Collective bargaining agreements[1]

	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
Workers covered by collective agreements	0	438	762	321	278	484	580	322	393	3,578
Total % of employees	0%	71%	84%	54%	45%	53%	67%	71%	63%	53%

(1) Unionization is free and voluntary. Pan American Silver respects freedom of association.

TOPIC SPECIFIC GRI STANDARDS

Economic

Economic Performance

201-1   **Direct economic value generated and distributed**

	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morocoacha	San Vicente	Manantial Espejo	Total
Community Investment ($USD)[1]	174,128	4,847,996	45,229	3,505,945	2,716,830	1,053,498	343,146	1,202,931	526,367	14,416,070

(1) Numbers reflect the entire amount of social budgets executed as of December 31, 2019 for each operation.

Corporate Giving Committee Donations	($ CAD)		
PAS Scholarships	$2,000	Power To Be	$1,050
Van Intl Children's Festival	$5,000	Relay for Life - Canadian Cancer Society	$510
Women in Mining BC	$1,740	Shorts 4 St.Paul's	$1,000
Paws for Hope	$5,000	Peruvian-Canadian Chamber of Commerce	$1,000
Laurentian University Scolarships	$5,000	Women Who Rock	$10,000
Hockey Helps the Homeless	$10,000	Pacific Salmon Foundation	$10,000
Vancouver Symphony Orchestra	$27,000	Society of Economic Geologists Foundation	$10,000
Covenant House	$20,000	BC Cancer Foundation	$5,000
Minerva Foundation	$20,625	Mexican Embassy	$3,000
UBC Scholarships	$5,000	Canada Helps	$5,000
BC Children's Hospital Foundation	$20,000	UBC Development Alumni	$4,780
Canada Scores Cup	$3,500	**Total**	**$176,210**

Procurement Practices

204-1   **Proportion of Spending on Local Suppliers**

	Timmins	Dolores	La Colorada	Escobal	Shahuindo	La Arena	Huaron	Morocoacha	San Vicente	Manantial Espejo	Total
Spend for goods and services ($US Million)	91.3	189.9	47.1	10.8	87.4	103.1	60.5	65.1	28.4	73.9	757.6
Portion spent on local and regional suppliers[1]	86%	42%	16%	99%	17%	27%	92%	96%	19%	26%	48%

(1) Local and regional suppliers include those located in communities within the direct area of influence, and those located in surrounding regions within the indirect areas of influence. Local procurement varies by region depending on the availability of local suppliers and the proximity of the mine to major economic centers such as Lima and Guatemala City.

Environment

Energy

302-1 Energy consumption within the organization[1]

	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
Diesel (m3)	6,749	33,004	2,807	12,397	25,228	3,103	3,779	1,296	16,709	105,072
Gasoline (m3)	77	1,089	207	0.17	12	-	-	102	-	1,487
Carbon (tonnes)	-	-	-	-	-	5	-	2	-	7
Liquified Petroleum Gas, LPG (m3)	8,443	78	323	134	136	28	172	-	-	9,314
Ammonium Nitrate, ANFO (tonnes)	20	8,426	789	-	2,034	349	942	951	-	13,510
Emulsion (tonnes)	2,245	380	518	4,239	8,723	686	5	71	2	16,868
Electricity (MWh)	189,064	101,632	70,157	28,348	17,931	86,538	78,780	25,117	-	597,567

(GJ)	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
Diesel	261,051	1,276,601	108,565	479,512	975,835	120,024	146,167	50,129	646,294	4,064,178
Gasoline	2,669	37,746	7,187	6	406	-	-	3,535	-	51,548
Carbon	-	-	-	-	-	149	-	49	-	198
Liquified Petroleum Gas, LPG	215,550	1,987	8,256	3,419	3,467	715	4,390	-	-	237,784
Ammonium Nitrate, ANFO	46	19,379	1,814	-	4,678	803	2,166	2,187	-	31,073
Emulsion	5,164	874	1,191	9,749	20,063	1,578	11	163	4	38,796
Electricity	680,630	365,874	252,566	102,052	64,553	311,537	283,609	90,421	-	2,151,241
Total	1,165,110	1,702,461	379,579	594,738	1,069,001	434,805	436,343	146,485	646,298	6,574,819

(GJ)	2019[2]	2019 Silver Segment[3]	2018	2017	2016
Diesel	4,064,178	2,347,780	2,249,112	2,437,184	2,548,581
Gasoline	51,548	48,468	50,855	64,578	62,949
Carbon	198	198	260	216	259
Liquified Petroleum Gas, LPG	237,784	15,348	17,643	36,736	70,467
Ammonium Nitrate, ANFO	31,073	26,350	25,945	1,921	4,837
Emulsion	38,796	3,820	3,146	25,348	24,797
Electricity	2,151,241	1,304,007	1,182,125	1,098,741	1,037,399
Total	6,574,819	3,745,971	3,529,087	3,664,725	3,749,290

(1) The measurement methodology to collect the information is inventory control. PAAS used TSM - Energy and Greenhouse Gas Emissions Management Guide 2014, Orica and conversion tools to transform the units to GJ.
(2) Including newly acquired Tahoe operations.
(3) For comparison purpose with prior years.

Environment

Energy

Pan American Silver - Purchased Electricity 2019

	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total	%
Total MWh	189,064	101,632	70,157	28,348	17,931	86,538	78,780	25,117	-	597,567	
Non-renewable	16,447	80,307	55,436	10,888	6,887	33,237	-	15,903	-	219,103	37%
Renewable	63,184	16,983	11,724	17,460	11,044	53,301	78,780	9,214	-	261,691	44%
Nuclear	109,433	4,342	2,997	-	-	-	-	-	-	116,772	20%

	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total	%
Total GJ	680,630	365,875	252,565	102,053	64,552	311,537	283,608	90,421	-	2,151,241	
Non-renewable	59,208	289,104	199,570	39,195	24,792	119,651	-	57,252	-	788,772	37%
Renewable	227,464	61,140	42,205	62,858	39,759	191,885	283,608	33,169	-	942,089	44%
Nuclear	393,959	15,631	10,790	-	-	-	-	-	-	420,380	20%

Source:
Canada - Statistics Canada - https://www.150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2510001501
Mexico - Secretaria de Energia (Capitulo V) - https://www.gob.mx/sener/documentos/prodesen-2019-2033
Peru - COES Cuadro 4.2A - https://www.coes.org.pe/Portal/Publicaciones/Estadisticas/
Bolivia - Comite Nacional de Despacho de Carga - https://www.cndc.bo/estadisticas/anual.php
Morococha - https://www.statkraft.com.pe/sostenibilidad/

Water

303-3   Water withdrawal[1]

(m³)	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente[2]	Manantial Espejo	Total
Total water withdrawal[3]										
Mine dewatering	1,167,149		3,709,412	-	-	23,658,815	24,542,774	736,441	1,017,509	54,832,100
External sources	-		-		-	-	-	81,247	-	81,247
Ground water	5,189		-	368,874	104,428	-	-	-	-	478,491
Surface water	5,415		-	207,323		5,049,917	2,537,534	-	-	7,800,190
Precipitation[4]	2,295,315		262,662	936,214	4,586,401	700,988	12,181,279	103,176	175,450	21,241,485
Water withdrawal from areas with water stress[3][5]										
Mine dewatering	394,537	-	-	-	-	-	-	-	-	394,537
External sources	-	-	-	-	-	-	-	-	-	-
Ground water	344,123	-	-	-	-	-	-	-	-	344,123
Surface water	835,328	-	-	-	-	-	-	-	-	835,328
Precipitation[4]	708,105	-	-	-	-	-	-	-	-	708,105
Total water withdrawal										
New water for mineral processing	682,070	1,266,920	576,852	1,054,853	971,019	4,251,387	2,450,525	362,888	392,882	12,009,396

	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
Recycled Process Water (m³)	2,044,982	12,093,423	1,798,101	14,736,032	16,053,227	-	532,659	647,940	2,086,922	49,993,285
% Recycled Process Water[6]	75%	91%	76%	93%	94%	0%	18%	64%	84%	81%

(1) Each site follows local regulations regarding water withdrawal.
(2) While San Vicente is not in an area classified as water stressed according to the World Resources Institute, we recognize that the mine is a water scarce region and continually work to reduce our water use from external sources.
(3) All water is Freshwater ≤ 1000 mg/L total dissolved solids.
(4) Water from precipitation captured in tailings facilities, large water ponds and heap leach pads.
(5) Areas with water stress were assessed by using the World Resources Institute, Aqueduct Water Risk Atlas project.
(6) The percentage of recycling water is calculated by the total recycled water divided by the total water used in mineral processing.

303-4   **Water discharge**[1][2][3]

(m³)	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
Discharge to Surface Water not requiring treatment	-	394,537	-	-	-	-	-	-	-	394,537
Discharge to Groundwater	-	-	-	-	-	-	-	-	-	-
Discharge to treatment plant or lagoons then to surface water	2,276,135	-	3,143,521	-	-	28,029,785	2,630,197	467,581	331,612	36,878,831
Water from precipitation	1,613,245		-	125,404	3,138,269	1,379,935	12,181,279	-	-	18,438,132
Third-party water	-	155,160	20,508	-	-	-	24,542,774	636	-	24,719,078

(1) The treatment and volume measurement may vary across the sites, depending on local regulations. Each site uses the most appropriate methodology to conduct analysis and ensure compliance with local regulations.
(2) The discharge amount in this table does not consider wastewater, water used for drilling, losses and evaporation. The company wide water balance considers all kinds of discharge.
(3) The water stress area is the same reported in 303-3. In 2019 we did not have any incidents of non compliance with discharge limits of any substances of concern.

Biodiversity

MM1   **Amount of land (owned or leased, and managed for productive activities of extractive use) disturbed or rehabilitated**
304-3   **Habitats protected or restored**

(ha)	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
Total land disturbed and not yet rehabilitated at end 2019	359	826	193	382	478	307	65	64	436	3109
Total land newly disturbed in 2019	0	105	6	59	10	6	1	0.6	0	188
Total land newly reclaimed in 2019	0	45	2	8	70	0	0.2	0.2	0	126

(ha)	2019 Total[1]	2019 Silver Segment	2018	2017
Total land disturbed and not yet rehabilitated at end 2019	3109	1890	1771	1753
Total land newly disturbed in 2019	188	118	89	117
Total land newly reclaimed in 2019[2]	126	48	-	-

(1) Including newly acquired Tahoe operations.
(2) Total newly reclaimed was included for this year report

Emissions

305-1   Direct Greenhouse Gas (Scope 1) GHG emissions
305-2   Energy indirect (Scope 2) GHG emissions

(tonnes of CO2-eq)		Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
Direct (Scope 1) GHG Emissions[1]	Diesel	18,282	89,406	7,603	33,582	68,342	8,406	10,237	3,511	45,263	284,633
	Gasoline	191	2,707	515	0.42	29	-	-	254	-	3,697
	Carbon	-	-	-	-	-	13	-	4	-	17
	Liquified Petroleum Gas, LPG	13,068	120	501	207	210	43	266	-	-	14,416
	Ammonium Nitrate, ANFO	4	1,592	149	-	384	66	178	180	-	2,553
	Emulsion (tonnes)	424	72	98	801	1,649	130	1	13	0.32	3,188
Energy Indirect (Scope 2) GHG Emissions[2]	MWh	5,105	46,883	32,364	6,282	3,974	19,177	17,458	10,858	-	142,099
	Total	37,075	140,781	41,230	40,873	74,588	27,834	28,139	14,820	45,263	450,603

(1) Pan American Silver used National Inventory Report Canada 2018 to calculate Direct (Scope 1) GHG emissions. The global warming potential (GWP) is based on the information provided by the Government of Canada. Gases included in this calculation are CO2, CH4 and N2O. The GHG protocol and B.C. Methodological Guidance for Quantifying Greenhouse Gas Emissions are used as reference.
(2) Emissions from purchased electricity calculated according to GHG protocol using the IEA 2019 tool for all the mines except Timmins. Emission factor for Timmins provided by the Independent Electricity System Operator (IESO) in Ontario. Gases included in this calculation are CO2, CH4 and N2O.

(tonnes of CO2-eq)		2019[1]	2019 Silver Segment	2018	2017
Direct (Scope 1) GHG Emissions	Diesel	284,633	164,426	157,516	170,920
	Gasoline	3,697	3,476	3,647	4,476
	Carbon	17	17	22	18
	Liquified Petroleum Gas, LPG	14,416	930	1,070	2,187
	Ammonium Nitrate, ANFO	2,553	2,165	2,132	2,083
	Emulsion (tonnes)	3,188	314	259	158
	Total	308,504	171,328	164,645	179,842
Energy Indirect (Scope 2) GHG Emissions	MWh	142,099	126,739	123,880	113,971
	Total	450,603	298,067	288,525	293,813

(1) Including newly acquired Tahoe operations.

Waste

306-2 Waste by type and disposal method

Total - All Mines (tonnes)	Reuse	Recycled	Compost	Landfill (Non-Hazardous Waste)	Secured Landfill	Total
Hazardous or dangerous waste	9	726	-	-	1,713	2,447
Non-hazardous inert waste	3	39	-	426	-	468
Domestic waste to landfill	-	-	239	3,533	-	3,772
Recyclable	46	2,253	-	-	-	2,300
Total	58	3,018	239	3,959	1,713	8,987

306-3 Significant spills

	Timmins	Dolores	Alamo Dorado	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo
Number of significant spills[1]	1	-	-	-	-	-	-	-	2	-
Volume of liquid or material (m³)	1.2	-	-	-	-	-	-	-	49	-

(1) Significant spills defined as reportable spills according to local regulations. Details of spills and company actions are described in the Tailings and Waste Management section of the report.

	2019	2018	2017
Number of significant spills	3	1	2
Volume of liquid or material (m³)	51	10	46

G4 MM3 Total amounts of over burden, rock, tailings, and sludges

(tonnes)	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
Tailings not used as hydraulic backfill (dry tonnes)	1,715,859	-	504,643	-	-	739,214	605,999	347,186	708,579	4,621,480
Waste rock not used as backfill	252,908	38,422,842	-	12,423,339	27,494,047	311,822	301,813	-	-	79,206,771
Water treatment sludge	-	5	701	302	929	20,086	19	170	-	22,212

Labour Practices and Decent Work

Employment

401-1 New employee hires and employee turnover

New Employee Hires		Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
<30	Men	67 0.99%	27 0.40%	33 0.49%	26 0.38%	13 0.19%	19 0.28%	31 0%	7 0.10%	40 0.59%	263 0.43%
	Women	7 0.10%	3 0.04%	8 0.12%	3 0.04%	1 0.01%	1 0.01%	3 0%	7 0.10%	9 0.13%	42 0.07%
Between 30 and 50	Men	62 0.91%	41 0.60%	40 0.59%	84 1.24%	34 0.50%	26 0.38%	19 0%	20 0.29%	86 1.27%	412 0.67%
	Women	7 0.10%	3 0.04%	8 0.12%	3 0.04%	1 0.01%	1 0.01%	3 0%	7 0.10%	9 0.13%	42 0.06%
>50	Men	19 0.28%	1 0.01%	0 0%	10 0.15%	3 0.04%	4 0.06%	1 0%	3 0.04%	9 0.13%	50 0.08%
	Women	2 0.03%	1 0.01%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	2 0.03%	5 0.01%

Employee Turnover[1]		Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
<30	Men	31 0.46%	22 0.32%	12 0.18%	7 0.10%	14 0.21%	7 0.10%	18 0.26%	1 0.01%	6 0.09%	188 0.19%
	Women	1 0.01%	1 0.01%	1 0.01%	6 0.09%	4 0.06%	1 0.01%	1 0.01%	1 0.01%	1 0.01%	17 0.03%
Between 30 and 50	Men	64 0.94%	27 0.40%	27 0.40%	66 0.97%	76 1.12%	30 0.44%	37 0.54%	22 0.32%	31 0.46%	380 0.62%
	Women	8 0.12%	3 0.04%	0 0%	6 0.09%	8 0.12%	1 0.01%	3 0.04%	3 0.04%	5 0.07%	37 0.06%
>50	Men	27 0.40%	4 0.06%	0 0%	11 0.16%	16 0.24%	10 0.15%	6 0.09%	6 0.09%	7 0.10%	87 0.14%
	Women	2 0.03%	0 0%	0 0%	0 0%	0 0%	1 0.01%	0 0%	0 0%	1 0.01%	4 0.01%

(1) Turnover includes permanent employees. Turnover includes retirement, voluntary or involuntary departure of permanent employees.

Occupational Health and Safety

403-2   **Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities**

2019 Safety Perfornace	Timmins	Dolores	La Colorada	Shahuindo	La Arena	Huaron	Morococha	San Vicente	Manantial Espejo	Total
Lost time injury frequency[1]	1.99	0.44	0.32	0.86	0.81	1.32	1.94	1.35	2.03	1.04
Lost time injury severity[2]	9	46	6	80	30	103	1,788	69	4,239	481

(1) Lost time injury frequency is calculated as the number of lost time injuries, including fatalities, in the exposure period multiplied by 1 million hours and divided by the total number of hours worked in that period.
(2) Lost time injury severity is a measurement of the seriousness of injuries and is calculated as the number of workdays lost due to lost time injuries multiplied by 1 million and divided by the total exposure hours. We count 6,000 lost workdays in the event of a fatal accident.

Historical Safety Performance[1]	2019	2018	2017
LTIF[2]	1.04	1.41	1.26
LTIS[3]	481	723	771
Fatalities	2	1	2

(1) Includes Contractors
(2) Lost time injury frequency is calculated as the number of lost time injuries, including fatalities, in the exposure period multiplied by 1 million hours and divided by the total number of hours worked in that period.
(3) Lost time injury severity is a measurement of the seriousness of injuries and is calculated as the number of workdays lost due to lost time injuries multiplied by 1 million and divided by the total exposure hours. We count 6,000 lost workdays in the event of a fatal accident.

Diversity and Equal Opportunity

405-1   Diversity of governance bodies and employees

Percentage of employees per gender and age group	Employees[1]									
	Male				Total Male	Female				Total Female
	< 30	30-50	> 50	> 60		< 30	30-50	> 50	> 60	
Corporate Office	5%	32%	19%	10%	66%	3%	21%	10%	0%	34%
Canada	14%	52%	18%	7%	91%	3%	5%	1%	0%	9%
Peru	14%	68%	11%	2%	95%	1%	3%	1%	0%	5%
Mexico[2]	24%	60%	8%	1%	93%	2%	4%	1%	0%	7%
Guatemala[2]	18%	56%	6%	3%	83%	6%	10%	1%	0%	17%
Bolivia	11%	75%	7%	1%	94%	1%	4%	1%	0%	6%
Argentina[2]	18%	65%	6%	1%	90%	2%	7%	1%	0%	10%
Total[3]	17%	64%	10%	2%	93%	2%	4%	1%	0%	7%

(1) The percentages by age and gender in each country and corporate uses the total number of employees per country and per corporate.
(2) Includes Escobal, Alamo Dorado and Navidad.
(3) The total percentages per employees' gender and age group calculation uses the total number of employees in the company.

Percentage of contractors per gender and age group	Contractors[1]									
	Male				Total Male	Female				Total Female
	< 30	30-50	> 50	> 60		< 30	30-50	> 50	> 60	
Corporate Office	0%	0%	100%	0%	100%	0%	0%	0%	0%	0%
Canada	34%	40%	13%	5%	92%	5%	3%	0%	0%	8%
Peru	24%	60%	4%	1%	89%	5%	6%	0%	0%	11%
Mexico[2]	31%	51%	9%	1%	92%	4%	4%	0%	0%	8%
Guatemala[2]	40%	30%	5%	0%	75%	18%	7%	0%	0%	25%
Bolivia	30%	54%	2%	0%	86%	4%	10%	0%	0%	14%
Argentina[2]	28%	63%	2%	1%	94%	3%	2%	1%	0%	6%
Total[3]	27%	55%	6%	1%	89%	5%	6%	0%	0%	11%

(1) The percentages by age and gender in each country and corporate uses the total number of contractors per country and per corporate.
(2) Includes Escobal, Alamo Dorado and Navidad.
(3) The total percentages per contractors' gender and age group calculation uses the total number of contractor's in the company.

Percentage of management type be gender	Senior Manager[1]		Manager[2]		Superintendent/Assistant Manager[3]		Supervisors[4]	
	Male	Female	Male	Female	Male	Female	Male	Female
Corporate Office[5]	86%	14%	69%	31%	0%	0%	0%	0%
Canada	50%	50%	0%	0%	94%	6%	84%	16%
Peru	86%	14%	67%	33%	90%	10%	92%	8%
Mexico[6]	91%	9%	86%	14%	78%	22%	89%	11%
Guatemala[6]	100%	0%	82%	18%	78%	22%	93%	7%
Bolivia	100%	0%	100%	0%	100%	0%	85%	15%
Argentina[6]	100%	0%	75%	25%	100%	0%	91%	9%

(1) Senior Manager include country managers, directors, and every employee who reports direcly to a country manager. It also includes operation managers and/or general manager at the mine site.
(2) Managers include any employee who reports direcly to a senior manager, but it does not include country managers.
(3) Superintendent / Assistant Manager includes head of departments (mine managers, process managers, security managers, mine superintendent, maintenance superintendent, etc.) who report directly to operations manager or its equivalent.
(4) Supervisors include employees who have at least one person they supervise, ei. maintenace supervisor, head guard, etc.
(5) At the corporate level, senior management include vice presidents, senior vicepresidents and the C-level executives while managers include directors and managers.
(6) Includes Escobal, Alamo Dorado and Navidad.

GRI Index

Stakeholder Engagement

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102-41	**Collective bargaining agreements**	68, 111
102-42	**Identifying and selecting stakeholders**	12, 13
102-43	**Approach to stakeholder engagement**	12, 13, 14
102-44	**Key topics and concerns raised**	13, 15, 16, 28, 36, 46, 56, 62, 64, 82, 87, 94, 98, 104

Reporting Practice

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102-46	**Defining report content and topic boundaries**	14
102-47	**List of material topics**	15
102-48	**Restatement of information**	
	There have been no restatements of information from previous reports.	
102-49	**Changes in reporting**	IFC
102-50	**Reporting period**	IFC
102-51	**Date of most recent report**	IFC
102-52	**Reporting cycle**	IFC
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Economic

Economic Performance

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Market Presence

Indirect Economic Impacts

Information regarding impacts in the context of external benchmarks is currently unavailable.

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Anti-Corruption

Environment

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Biodiversity

304-3	Habitats protected or restored	96, 115
G4 MM1	Amount of land (owned or leased, and managed for productive activities of extractive use) disturbed or rehabilitated	96, 115
G4 MM2	Total sites requiring biodiversity management plans	95

Under the TSM Biodiversity Protocol all our sites are required to have biodiversity management plans.

Emissions

305-103	Management approach disclosures	79, 87, 92
305-1	Direct (Scope 1) GHG emissions	88, 89, 90, 91, 116
305-2	Energy indirect (Scope 2) GHG emissions	88, 89, 90, 91, 116
305-3	Other indirect (Scope 3) GHG emissions	88, 89, 90, 91
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Effluents & Waste

306-103	Management approach disclosures	79, 83, 88, 99
306-2	Waste by type and disposal method	101, 102, 103, 117
306-3	Significant spills	117
G4 MM3	Total amounts of over burden, rock, tailings, and sludges	101, 117

Labour Practices and Decent Work

Employment

401-103	Management approach disclosures	56, 64, 66
401-1	New employee hires and employee turnover	67, 118

Labour/Management Relations

G4 MM4	Number of strikes or lockouts exceeding one week's duration	68

Occupational Health and Safety

403-103	Management approach disclosures	56
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	58, 119

We do not report injury rates by gender. We do not report on occupational disease rate, lost day rate, absentee rate. This information is not available.

Training and Education

404-103	**Management approach disclosures**	56, 64, 66

404-1	**Average hours of training per year per employee**	59, 68

We report training data related to health and safety only. Company-wide data for other types of training is currently unavailable.

Diversity and Equal Opportunity

405-103	**Management approach disclosures**	64, 66

405-1	**Diversity of governance bodies and employees**	69, 70, 71, 72, 73, 120, 121

We do not report on the diversity of governance bodies.

405-2	**Ratio of basic salary and remuneration of women to men**	65

Due to our recent acquisition of Tahoe Resources and on-going alignment of our systems, data is currently unavailable.

Non-Discrimination

406-103	**Management approach disclosures**	64, 66

406-1	**Incidents of discrimination and corrective actions taken**	73

Human Rights

Freedom of Association and Collective Bargaining

407-103	**Management approach disclosures**	64, 66

407-1	**Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk**	48

As of December 31, 2019, the right to exercise freedom of association and collective bargaining was not at a significant risk for any of our operations or suppliers.

Child Labour

408-103	**Management approach disclosures**	29, 30, 46, 47

408-1	**Operations and suppliers at significant risk for incidents of child labour risk**	48, 49, 51, 52

As of December 31, 2019, child labour was not at a significant risk for any of our operations or suppliers.

Forced or Compulsory Labour

409-103	**Management approach disclosures**	29, 46, 47

409-1	**Operations and suppliers at significant risk for incidents of forced or compulsory labour**	48

As of December 31, 2019, forced labour was not at a significant risk for any of our operations or suppliers.

Security Practices

410-103	**Management approach disclosures**	47, 49

410-1	**Security personnel trained in human rights policies or procedures**	49, 50, 51, 52

Company-wide data is currently unavailable.

Rights of Indigenous Peoples

411-103	Management approach disclosures	44, 46, 47
411-1	Incidents of violations involving rights of indigenous peoples	48, 50
G4 MM5	Total numbers of operations taking place in or adjacent to indigenous people's territories and formal agreements made	44, 50

Society

Local Communities

413-103	Management approach disclosures	29, 37, 79
413-1	Operations with local community engagement, impact assessments, and development programs	32, 40
413-2	Operations with significant actual and potential negative impacts on local communities	62, 63
G4 MM6	Numbers and description of significant disputes relating to land use, customary rights of local communities, and indigenous people	33, 50
G4 MM7	Grievance mechanisms used to resolve disputes relating to land use, customary rights of local communities, and indigenous people	32, 53

Mining and Metals

Artisanal and Small-Scale Mining

G4 MM8	Number and percentage of company operating sites where artisanal and small-scale mining takes place on, or adjacent to, the site	50

Relocation

G4 MM9	Sites where resettlement took place, the number of households resettled in each, and how their livelihoods were affected in the process	

We did not undertake any community resettlements in 2019.

Closure Planning

G4 MM10	Management approach disclosures	94, 95
G4 MM10	Number and percentage of operations with closure plans	94, 95, 97, AR P. 53

Please visit our 2019 Sustainability Report website at:
www.panamericansilver.com/sustainabilityreport2019

We welcome any feedback related to this report. Please direct your comments or questions to Brent Bergeron, Senior Vice President of Corporate Affairs and Sustainability, or Monica Moretto, Vice President of Social Sustainability, Inclusion and Diversity, at:
csr@panamericansilver.com.

Forward-Looking Statements and Information

This document contains "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995, and "forward-looking information" within the meaning of applicable Canadian provincial securities laws. All statements, other than statements of historical fact, are forward-looking statements or forward-looking information. Forward-looking statements or information in this document relate to, among other things: the duration or extent of the suspensions or voluntary reduction of activities at our operations, and the effect that any such reductions or suspensions may have on our operations; timing or achievement of future goals, programs, and related disclosure with respect to our operations, development, safety and diversity initiatives for our employees, investments in sustainable development, and environmental management, including with respect to water management, greenhouse gas emissions, climate change mitigation, and rehabilitation.

These forward-looking statements and information reflect the current views of Pan American Silver with respect to future events and are necessarily based upon a number of assumptions that, while considered reasonable by Pan American Silver, are inherently subject to significant operational, business, economic and regulatory uncertainties and contingencies, and such uncertainty generally increases with longer-term forecasts and outlook. These assumptions include: COVID-19 is managed and the duration and extent of the coronavirus pandemic is minimized or not long-term; our ability to complete goals and initiatives in, among other things, sustainable development, stakeholder engagement, environmental management, and mitigation of climate change; tonnage of ore to be mined and processed; ore grades and recoveries; prices for silver, gold and base metals remaining as estimated; currency exchange rates remaining as estimated; availability of funds for Pan American Silver's projects and future cash requirements; capital, decommissioning and reclamation estimates; prices for energy inputs, labour, materials, supplies and services (including transportation); no labour-related disruptions at any of our operations; no unplanned delays or interruptions in scheduled production; all necessary permits, licenses and regulatory approvals for our operations are received in a timely manner; our ability to secure and maintain title and ownership to properties and the surface rights necessary for our operations; and our ability to comply with environmental, health and safety laws. The foregoing list of assumptions is not exhaustive.

Forward-looking statements and information involve many known and unknown risks, uncertainties and other factors that could cause actual results or performance to be materially different from the results or performance that are or may be expressed or implied by such forward-looking statements or information, including, but not limited to, factors, such as: the duration and effects of COVID-19 and any other pandemics on our operations and workforce; metal price fluctuations, fluctuation in the costs of energy, labour, materials and other inputs, fluctuations in currency markets and exchange rates, operational risks and hazards inherent with the business of mining (including environmental accidents and hazards, industrial accidents, equipment breakdown, unusual or unexpected geological or structural formations, cave-ins, flooding and severe weather); risks relating to the credit worthiness or financial condition of suppliers, refiners and other parties with whom Pan American Silver does business; inadequate insurance, or inability to obtain insurance, to cover these risks and hazards; employee relations; relationships with, and claims by, local communities and indigenous populations; our ability to obtain all necessary permits, licenses and regulatory approvals in a timely manner; changes in laws, regulations and government practices in the jurisdictions where we operate, including environmental, export and import laws and regulations; changes in national and local government, legislation, taxation, controls or regulations and political, legal or economic developments in Canada, the United States, Mexico, Peru, Argentina, Bolivia, Guatemala or other countries where Pan American Silver may carry on business, including legal restrictions relating to mining, including those in Chubut, Argentina, risks relating to expropriation, and risks relating to the constitutional court-mandated ILO 169 consultation process in Guatemala, and those factors identified under the heading "Risks Related to Our Business" in Pan American Silver's most recent Form 40-F and Annual Information Form filed with the U.S. Securities and Exchange Commission and with Canadian provincial securities regulatory authorities, respectively. Pan American Silver has attempted to identify important factors, but there may be other factors that cause results not to be as anticipated, estimated, intended or described. Investors are cautioned against attributing undue certainty or reliance on forward-looking statements and information. Pan American Silver does not intend, nor assume, any obligation to update or revise forward-looking statements and information except to the extent required by applicable law.